

THE
Chicago Medical Journal.

A MONTHLY RECORD OF

Medicine, Surgery and the Collateral Sciences.

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VOL. XXIX. — AUGUST, 1872. — No. 8.

Original Communications.

ARTICLE I. — *Disease Germs.* By I. N. DANFORTH, M.D.,
Chicago.

SECOND PAPER.

III. "Every dog must have his day," is a trite old saying, which is equally true of theories; and it may be added, without stretching the truth, that, in respect to longevity, dogs generally have the advantage of theories. Defunct theories, however, sometimes come to life again, but let us rejoice that defunct canines know no resurrection. The brevity of the sway of pathological theories, as well as the possibility of their subsequent revival, is well illustrated in the case of those first announced by Dr. J. H. Salisbury, of Cleveland.

In 1862, Dr. Salisbury was consulted by a gentleman who attributed an attack of measles to the inhalation of the dust from decaying wheat straw; and on the same day (Dec. 4th) this disease made its appearance in the military camp at Newark, Ohio, with which Dr. S. was officially connected. On examination, he found that the soldiers were sleeping upon straw beds, and, further-

more, that when the bedticks were filled, the straw was damp from recent exposure to snow. "Here were present all the conditions requisite for the formation of mould upon the straw, viz., organic decomposition, heat and moisture, and here were also visible the effects of the exposure of the men to such influences—nor could the disease be traced to any other source. The men came from different parts of the country, and had neither been exposed previous to enlistment, nor afterwards, to the contagious influence of the disease. * * * * "

With these observations before him, Dr. S. "deemed the subject one for further investigation, and accordingly procured the fungus growths of wheat, and the dust rising from them when agitated, for microscopical examination."* The microscope revealed "cells, spores, and sporangia, each element existing in greater or less quantity according to the amount of decomposition which the straw had undergone." He then took "clean white straw, free from fungi, packed it firmly in a small wooden box, wet it with a small amount of cold well water, and placed it with the lid firmly secured near the stove in his office, subjected to a temperature of from 60° to 75° Fah."

The cells and spores were promptly developed, and the doctor then "conceived the idea of inoculating himself," and did so with the effect of producing some catarrhal symptoms, and an eruption upon the face. Next his wife was inoculated, and substantially the same results followed. A boy six years of age who had been exposed to measles seventy-two hours before was then inoculated; this was followed by catarrhal symptoms, which subsided in a few days, and forty-two days afterwards no signs of measles had appeared. "This procedure was adopted in thirteen similar cases, with like results."

"I have not been able," says Dr. S., in conclusion, "to distinguish thus far any difference between the eruption and attendant symptoms of genuine measles and 'camp measles,' or straw measles."† Straw measles, however, generally make their appearance within from twenty-four to ninety-six hours after inhalation of the germs, while the genuine disease, as is well known, requires from eleven to fourteen days for its development. The observations and inferences of Dr. Salisbury concerning the germ origin of measles

* American Medical Times, vol. V., p. 134.

† Op. cit., p. 135.

excited considerable *curiosity*, but nothing more than that, and so far as I am aware, no one now regards the straw fungus as capable of exciting an attack of genuine measles.

In the year 1866, Dr. Salisbury published a lengthy and very interesting article in the "American Journal of the Medical Sciences," on the cause of intermittent and remittent fevers. Dr. S. commenced his investigations by examining the expectoration of persons suffering from intermittent fever, and of those residing upon or frequenting malarial levels. He found "a great variety of zoosporoid cells, animalcular bodies, diatoms, dismidia, algoid cells and filaments, and fungoid spores. The only constant bodies, however, uniformly found in all cases, and usually in great abundance, were minute oblong cells, either single or aggregated, consisting of a distinct nucleus, surrounded by a smooth cell-wall with a highly clear, apparently empty space between the outside cell-wall and nucleus. Their peculiar appearance satisfied me (him) early that they were not fungoid, but cells of an algoid type, resembling *strongly those of the palmellæ*."*

Further observation and experiment demonstrated that the cells emanated from plants of a palmelloid type. After establishing this fact, the doctor undertook a careful series of investigations, in various localities, for the purpose of determining the relation of the palmellæ to paludal fevers. His observations and experiments are recorded with scrupulous care and exactness, and it would seem that they prove very clearly that the inhalation of the cells in question is pretty certain to bring on feverish symptoms, dryness of the fauces, and, if the exposure be sufficiently prolonged, true intermittent or remittent fever. Again, his observations demonstrated over again, what was already known, that persons residing in the wake of winds blowing over malarial soil, are almost certain to be attacked, while those located in the opposite direction are almost as likely to escape.

A detailed description of the different varieties of palmellæ is given in the work already cited (page 63), and on the same page, Dr. Salisbury remarks, "so far as I have examined (and my observations have been widely extended), I have never found a case of ague, *in situ*, where I did not find these plants growing near; and *vice versa*, I have never found these plants growing in any

* Am. Jour. Med. Sciences, January, 1866, p. 52.

locality but that (if such locality was inhabited) intermittent or remittent fever, or both, prevailed in proportion to their extent and profusion."

This theory of Dr. Salisbury, apparently so well founded and so carefully elaborated, attracted much attention and for a time found considerable favor with physicians. But it gradually lost its hold upon the profession, perhaps in some measure owing to the unfortunate fate of the straw-fungus theory, until it was either looked upon as the dream of an ingenious enthusiast, or forgotten altogether. Quite recently, however, a far distant observer has revived and given a new impetus to the doctrine of the germ-origin of miasm.

"M. Bolestra has reported his researches upon this subject, (the nature of miasm), to the French Academy of Sciences. The water of the Pontine Marshes, and of similar malarious regions, he found to contain, invariably, along with the common infusoria, a minute algoid vegetation, with an abundance of transparent, greenish-yellow spores $\frac{1}{1000}$ mm. in diameter. This vegetation develops slowly in pure water and at low temperatures, but rapidly in the heat of the sun and amid decomposing organic material. It floats upon the water, giving an iridescent film when young, and its spores are found in the air near the marshes, and even at Rome, being most abundant in warm weather and after a rain or during a fog, and least so in a cool, dry atmosphere. Dr. Bolestra regards these spores as the miasmatic agent in the production of the intermittent fevers for which the localities are badly celebrated."* This, it will be observed, is simply the Salisbury doctrine over again.

Count Castracane, the eminent Italian diatomist, has lately advanced a very ingenious theory as to the causation of miasmatic diseases, which, although not properly a germ theory, may be mentioned here. While endeavoring to ascertain what diatoms "live upon, and also why they suddenly die away nearly all at once," Count C. made the discovery that "nothing is so fatal to the life of marine or even brackish water diatoms as a sprinkling of pure fresh water. This he proved by repeated and carefully performed experiments. From this fact he comes to the very probable conclusion that the sudden dying away of myriads of diatoms,

* American Naturalist for June, 1872, p. 375.

besides, perhaps, myriads of other living creatures, during the rainy season (in Italy) might be, if not the only, at least, one of the most efficient causes of malaria."*

Certain observations relative to the spread of miasmatic diseases lend considerable support to the theory which attributes their origin to a germinal or material cause:

First, As already remarked, prevailing winds determine the direction in which they are propagated. They are *never* known to push their progress against the wind, but are always wafted in the direction of the air current.

Secondly, Belts of forest trees are very efficient agents in arresting their progress—their foliage apparently filtering the air and separating the germs—a result we should hardly expect did not the air contain some *material* source of infection.

Thirdly, Mountains or other high elevations of land have been observed to arrest the progress of paludal poisons.

Fourthly. Broad sheets of water, are, to some extent, protective, though, on the whole, less so than either forests or mountains. The protection afforded by water is in direct proportion to its extent—a narrow stream being vastly less efficient than a broad one.

Fifthly, It is a fact well known among oriental travelers—and especially by Englishmen residing or traveling in the British East Indian possessions, that sleeping under mosquito nets is very effective in preventing miasmatic diseases. Mr. E. L. Layard, a veteran traveler in the jungles, strongly advocates the constant use of mosquito nets, and pointedly deprecates neglecting this caution.† Other considerations equally potent might be added, but these are sufficient for present purposes.

Whether miasmatic diseases are caused by specific germs or not, is a question which must be investigated and settled mainly by the microscope. It should therefore be taken up and patiently worked out by microscopists having easy and frequent access to miasmatic regions. It will require a high magnifying power, an intimate acquaintance with low forms of vegetable and animal life, as well as months and possibly years of careful and painstaking study. It will demand very many observations, made at

* Nature, vol. I, p. 481.

† Nature, vol. II, p. 143.

different seasons of the year, upon different soils, and in widely separated localities, which must be compared with each other, to convert the present probability into an established fact. But all this is well worth doing. If the germ-origin of paludal fevers be demonstrated, it will add one more *fact* to the few that are now struggling to keep each other cheerful in their loneliness, amid the strange mosaic of guess-work which we call Pathology.

74 South Morgan Street.

ARTICLE II.—*Clinical Lectures on Diseases of the Ear.* By E. L. HOLMES, M.D., Professor of Ophthalmology and Otology, Rush Medical College, Surgeon to the Illinois Charitable Eye and Ear Infirmary.

THE MEMBRANA TYMPANI.

Gentlemen:

You have all repeatedly observed, as patients have presented themselves here for treatment, the membrana tympani in various conditions of the ear. In the examination of the objective symptoms in any aural disease, the appearance of this membrane will be of more importance, in diagnosis, than that of any other portion of the organ.

First, let us recur to the appearance of the normal membrane, which, as you can see in examining these four healthy individuals of different ages, may vary in different persons, in regard to "its relative position, inclination, form, size, color, curvature, lustre, degree of transparency, and texture." By observing carefully and frequently these peculiarities in health, you can readily detect any abnormal change which may exist.

The membrane consists of three principal layers: the inner, a mucous membrane—the outer, the epidermis—and the middle; which last may be divided again into radiating and circular fibres.

You are especially to observe the condition of the little ridge produced by the handle of the malleus, and the triangular light spot. The former extends from near the middle of the membrane upward and forward to the periphery. The latter extends from

near the centre of the membrane downward and forward to the periphery.

Thus you perceive the membrana tympani is divided into two portions: the smaller triangular portion, anterior to the light spot and handle of the malleus; and the larger portion, posterior to these boundaries. By observing these few relations, you have the most important outlines in locating all abnormal changes.

The vessels of the membrane are quite abundantly distributed in its outer and its mucous layers. The branches which run parallel with the handle of the malleus, are larger than the others. Any inflammatory action very near the membrane, is certain to produce congestion of these vessels, which should be an object of especial notice in examinations of the ear.

The nerves of the membrane are confined, principally, to its outer layers. The chorda tympani, a branch of the facial nerve, passes between the malleus and incus, across the anterior portion of the periphery of the membrane, but distributes no branches to it.

The physiology of the membrana tympani is simple. It receives the undulations of the atmosphere and communicates them through the chain of bones to the fluid of the labyrinth. And yet, you should remember, that large portions of the membrane may be destroyed without much impairing hearing, provided the mucous membrane, and especially the stapes and membrane of the foramen rotundum, remain intact.

The functions of the membrana tympani, through the influence of the tensor tympani and the stapedius muscles, seem to be, to a certain degree, analogous to the accommodative apparatus of the eye. These muscles appear to assist in the act of listening, although I believe they are far less active than the uliary muscle in the eye.

In studying the diseases of the membrana tympani, you should bear in mind that an idiopathic inflammation of this structure is almost absolutely unknown. Whenever you perceive any change in its structure, from disease, you may rest almost certain that it is dependent on disease of some other portion of the ear, either the external meatus or middle ear and eustachian tubes.

The most common abnormal appearances which you will meet, are vascularity, unevenness of surface (collapse), the handle of the malleus being remarkably distinct, perforation, and want of transparency.

In regard to perforations, I can only say that they occur chiefly from ulcerative process, dependent on inflammation of the external meatus, or middle ear. The opening is sometimes in such a position that it cannot be seen. One of the most important aids in diagnosing perforation, is simple auscultation while the patient, closing the nostrils and mouth, forcibly expires, which produces a peculiar whistling sound. Whenever, on looking into the external meatus, you perceive a pulsating movement of the purulent discharge collected on the membrane, you can be almost positive that there is a perforation.

It is comparatively seldom that you will meet with a case of perforation without more or less otorrhœa. The case before you is exceptional: you perceive a well-defined oval perforation, as a clear black spot, just behind the centre of the membrane. There is, apparently, not the slightest moisture around it. As the patient, closing the nostrils and mouth, forcibly expires, you hear distinctly the sound as the air passes through the ear. The perforation is, probably, the result of active inflammation which occurred years ago, but scarcely impairs hearing.

You will, occasionally, meet with ruptures and punctures of the membrana tympani. It is a matter of interest for you to know that such wounds, unless attended with injury of other portions of the ear, almost always heal without treatment. It is well, however, to remove coagula by gently syringing with tepid water. The patient should avoid violent efforts in blowing the nose.

Before attempting to heal perforations produced by inflammation, you should relieve the primary disease, and especially the otorrhœa. But this involves the subject of treatment of the middle ear, which we shall discuss hereafter. After the discharge has ceased, small openings will sometimes heal spontaneously. Large ones are occasionally induced to heal by applications of caustic to the edges of the opening. You must not, however, expect too much, for large openings, and not unfrequently small ones, are very difficult to close.

It remains for me simply to refer you, for future study, to the subject of artificial membrana tympani. The one I present to you is a simple disc of thin rubber, to the centre of which is attached a slender stem; this is inserted to a certain distance in the external

meatus. The exact position of this disc, as also that of a tuft of cotton which is often used to improve hearing, is learned by experience by the patient.

ARTICLE III. — *Notes from the Rear Rank.* By G. NEWKIRK, M.D., of New Boston, Mo.

CASE I. Caries of the tarsal bones of seventeen years' standing; amputation of leg.

May 5th, 1872. Mrs. Moss, aged 43, presented herself with a "sore foot," according to her custom, as she said, of consulting every "*new Doctor*" she could hear of.

Sanguine nervous temperament, with a good balance of the sarcous. Is much emaciated; general health poor; countenance presents the brown, dead hue peculiar to opium eaters; pulse slow and weak; blood poor; no organic lesion of heart or lungs.

Seventeen years ago received an injury of the left foot by falling from a horse. A "rising" ensued, which was opened with a free discharge of pus; this opening became permanent. Much medical and no surgical treatment was given by all sorts of "Fellows." The locality was known to the passer-by, from the number of elm trees girdled—for poultices!

The disease gradually extended itself from bone to bone, and the number of sinuses increased from one to fourteen, making a complete circle of discharging sores about the instep. For the past three years has borne no weight upon the limb; could secure rest only by the constant and excessive use of morphia; is in never-ending, never-ceasing pain.

The foot is considerably swollen, hard, and integument of a bluish dark color.

A probe passed into a sinus over the os cuboides passes readily through the foot to the opposite side, passed backward and forward reaches for some distance, encountering shells of bone here and there, some of which give way on pressure; the bases of the metatarsal bones are easily permeable. The examination is made with but little pain to the patient.

"The Doctors" have all lately pronounced the complaint "incurable," yet have refused to amputate or advise amputation for the reason given, that it is "*scrofulous*;" "the stump would not heal;" or, if it should, "something else would *set in*." Therefore the woman is placed in her present precarious condition by their ignorance and procrastination. She has to choose between the dangers of gangrene and sloughing with death, on the one hand, or the serious dangers of an operation in her present bad state of health, upon the other. An operation, however unfavorable cannot shorten life much, with the chances of lengthening it for years.

In consultation with Dr. Woods, of North Salem, an operation was advised, and all the risks presented. The patient wishes us to operate.

Tuesday, June 4th, assisted by Drs. Wood and Cox, I amputated the leg by the flap method, at the upper part of the middle third. Bone at point of operation sound; muscles soft, flabby and pale; arteries weak, pale and small; only the main three required ligation; very little loss of blood; very little oozing after dressing. About the third day thereafter, inflammation became active, but was quickly subdued by the application of continuous cold by water kept dripping upon the stump and toward the knee. Pain was controlled by morphia in grain doses; quinia, chlorate of potassa and iron were given, and a good nutritious diet provided. Mutton (in absence of beef) was administered in broth and substance as the stomach would bear, with stale bread, eggs, milk, wholesome canned fruits, etc., and an occasional weak brandy sling.

It was astonishing to witness the rapidity of constitutional reaction. With the removal of the grand cause of irritation came a vigorous and healthy general action. Digestion at once improved, with attendant appetite; the blood consequently became increased in volume and nutrient properties, and the heart became in a manner strong. At the end of four weeks the woman eats three hearty meals each day, and the stump is nearly healed. Carbolic acid and glycerine have constituted the local dressing.

An examination of the foot revealed almost total destruction of the os cuboides, scaphoid, astragalus and cuniform bones. The metatarsal were but shells of dead bones; the calcaneum retained

its outward form, but was partly broken down through its whole extent; a small portion of the tibial joint surface had also experienced decay. The soft parts had undergone in part induration, and in part fatty degeneration, or substitution.

No term in medical nomenclature has been applied so indefinitely and unmeaningly as *scrofula*. It has been made to cover a greater multitude of physical sins than charity has of the spiritual. It is astonishing, almost, to witness the rapid improvement under a healthy regime—conducted with an eye single to the proper amount and quality of the blood—in those cases ordinarily denominated scrofulous. *Nutrition is the sheet anchor and our only hope*; all medication is but an *adjuvant* to that if it possess any value, and generally speaking the less of it the better.

CASE II. Mrs. F., aged 68, has been for years suffering from "gravel." Spasm of the bladder has occurred at short intervals, attended by great suffering. No exploration was ever made by the attending "Fellow," but constant medication employed, for "gravel," and "falling of the womb"!

Saw her, for the first time, June 22nd. A vesical calculus, 1 inch by $1\frac{3}{4}$ inches in diameter, has forced its way into the urethral canal and presents its smaller extremity at the orifice, which is tightly constricted upon the roughened surface of the stone. Being pushed back into the bladder, a pair of narrow forceps are made to grasp it near its middle portion; by gentle traction, and a rotatory motion (without which last nothing can be effected,) the stone is delivered in less than half a minute, and without injury to the parts. The woman immediately got up and went about. No inconvenience of any kind followed.

Comments on the previous "*treatment*" for "*prolapsus uteri*" are uncalled for.

Selections.

*On Catarrh of the Uterus.** By CARL HENNIG, M.D., Professor in the University of Leipsic, formerly Assistant to the Obstetrical Clinique.

I. CATARRH OF THE NON-PREGNANT UTERUS.

A.—PRIOR TO THE MENSTRUAL EPOCHS.

Pathological Anatomy: (a) *In Children.*—Catarrh affects the uterus more frequently than the fallopian tubes, and occurs as frequently before the seventh year as afterwards. Before the seventh year, it generally only affects the cavity of the body, and, as a rule in children, never the cervical canal independently, but always the cavity of uterus and cervix simultaneously; then, also, as a rule, the vaginal mucous membrane participates in the catarrh. Only in one of my cases was the peritoneal covering of the catarrhal uterus thickened, in one other the muscular tissue of the anterior uterine wall was hyperæmic, and in a third pale. In general, it was proved by my examinations (differing from the assertion of Aran) that catarrhal affection of the mucous membrane does not, in the majority of cases, cause hyperæmia or inflammation of the uterine muscular tissue, nor should it be considered a result of the latter.

The mucous membrane in this disease has more rugæ than is seen in the healthy uterus during childhood; is not thickened, is of a yellowish or pale orange color, while here and there it is very pale, grayish, and very seldom injected (at least in the cadaver). Acute catarrh I have seen once in a little girl of nine months. The mucous membrane had many folds, was covered with an abundant, perfectly transparent, slightly acid mucus, of the consistency of the white of an egg. This mucus became cloudy upon the addition of diluted acetic acid, and contained, excepting a few pale granular cells, no elements.

In chronic catarrh it is difficult to recognize the tubular glands of the mucous membrane. After the addition of acetic acid, in their interior can be seen pale, round, or obtuse, irregularly arranged, single nucleated cells. The mucus has a faintly acid or slightly alkaline reaction, is transparent, slightly grayish, mucilaginous, and rarely limpid. Under the microscope, within it can be seen numerous cylindrical cells, oftentimes longitudinally striated,

* From his work, "Der Catarrh der Inneren Weiblichen Geschlechtstheile." Leipzig, 1870. Chap. iii., part ii. Translated by John C. Jay, Jr., M.D., New York.

and also a large amount of free hyaline. I never observed any ciliated epithelium, and only rarely blood corpuscles and pigment. Granular cells also are only occasionally met with.

(b) *In adults.*—Uterine catarrh occurs strikingly seldom during the middle of life, but frequently toward the menopause. We find that its occurrence in the cervical canal is very evenly distributed through the different periods of adult life, and that generally catarrh of the cavity of the body of the uterus occurs independently of catarrh of the cervix. Only in old age do the two affections seem to run parallel.

The uterine muscular tissue in catarrh is frequently softer, oftentimes hyperæmic, rarely injected or œdematous, and is in one-ninth of the cases pale and grayish-yellow. The post-mortem thickness and roughnesses of the peritoneal covering are often due to some other cause than the catarrh.

In acute catarrh the mucous membrane is a little swollen, and in young women greatly injected; in more advanced life it is pale. The cavity of the uterus is moderately enlarged, and contains as much as one scruple of glary, not very viscid, slightly yellowish mucus, having a slightly acid reaction, and in old women a strongly alkaline reaction. In it is seen here and there ciliated epithelium.

In chronic catarrh, the mucous membrane is perceptibly thickened only in old women, though occasionally even in young persons it is strongly pigmented, softened, roughened, and pitted, and quite often highly injected. In old women it is sometimes apoplectically hemorrhagic—a condition I have only seen in cholera corpses.

In others, especially after long-continued or oft-repeated catarrhal disturbance, the mucous membrane has a mottled grayish-green or brownish-red (inflammatory) appearance, or is exceedingly pale, with here and there networks of little vessels. Only in old women are the swollen mucous follicles appreciable to the naked eye; they are then lined with cells in a state of fatty or colloid degeneration. In younger women I found only the epithelium swollen and becoming hyaloid, surrounded by granular matter, and only in one woman of fifty-four years were the central cells fatty. In the latter case catarrh was not present.

In old age, cystic degenerated uterine follicles are seldom absent; they originate through a closure of their orifices, whereupon an accumulation of their contents takes place, and the fundus of the gland, therefore, distends into a sack. Accompanying this condition there is always an excess of mucus upon the free surface of the mucous membrane, while here and there can be seen tufts or glandular polypi.

The epithelium comes off easily in shreds. Ciliated epithelium are sometimes, even in old age, present in abundance. The cylindrical epithelium generally predominates.

Granular cells are present in abundance; free fat almost only in old persons; cholesterine I saw a few times.

There is much intracellular hyaline, and a few colloid globules. Blood corpuscles were in several cases very freely intermingled, and in one case only in a stellate contracted condition; less often I have found precipitated hæmatine.

The mucus secreted is generally whitish-gray, or reddish-gray, and either clear or clouded. In one case, I found it thin and fluid; in another, of the consistence of syrup; and, chiefly in those advanced in years, viscid. It is generally alkaline, although a variability from slight acidity to strong alkalinity has been noticed. The quantity found in the cavity may be as large as one drachm.

Symptoms.—Acute catarrh is, without exception, accompanied by dragging sensations in the lumbar and pubic region, which may radiate to the bladder and rectum. There is also often the feeling of a weight or pressure in the pelvis. The patient experiences similar pains when a chronic catarrh becomes exacerbated. The temperature of the body is always slightly, seldom much, increased; the pulse and respiration are quickened. The sleep is disturbed by frequent desires to urinate, and small, thin evacuations of the bowels, accompanied with rectal cramp, disturb especially the early hours of the morning. Most patients complain of slight chilly feelings, which alternate with flushes of heat. They speak quickly, are excitable or quick-tempered, and are inclined to be mournful. Some have headache, which is at first increased by their lying down, and they complain of megrim. They complain more of thirst than hunger, are often troubled with nausea, or pains in the stomach. They often declare that their abdomen is swollen, and cannot endure the bands of their clothes. In others, the lower portion of the abdomen is swollen, and at its centre (region of the uterus), or at the sides (region of the broad ligaments), is painful when pressure is made upon it. The skin is, as a rule, dry, and especially does the patient complain of a nocturnal burning of the soles of the feet; a few, also, of cold feet.

With severe lumbar pains, the sufferers frequently experience a discharge of clear mucus from the vulva; some have a discharge of bloody serum or of pure blood (*metritis hemorrhagica*). This discharge is seldom much in quantity, and lasts only a few days.

In chronic catarrh, the discharge is generally more considerable, but the local disturbances less. The fever is very slight. The gradual decline in strength is more marked; the face, previously of a good color, becomes pale, sallow, with dark rings around the eyes, and has the expression of pain. The patient grows thin, the menses are irregular, and constipation is often complained of.

Before puberty, catarrh of the body of the uterus, as far as I know, causes no annoyance.

B.—IN CONNECTION WITH MENSTRUATION.

Pathological Anatomy.—The uterus is swollen and congested, its mucous membrane twice or three times thicker than normal, and on one wall sometimes thicker than upon the opposite one; its surface is covered over with slimy, partly coagulated blood. In rare cases, a large portion of the exuberant mucous membrane has been thrown off.

Symptoms.—Towards the end of the menstrual period, the beginning of which was ushered in by pains in the region of the uterus, and by an abundant discharge of mucus, clots of blood, together with shreds of mucous membrane, or a complete cast of the uterine cavity, are discharged, accompanied with bearing-down pains (*membranous dysmenorrhœa.*)

II. CATARRH OF THE PREGNANT UTERUS.

Catarrh of the gravid uterus is of very rare occurrence, and an affection seen but by a few, for the reason that pregnancy is not favorable to the existence of catarrh of the uterine cavity, that its secretion is never discharged so as to be seen, and that *post-mortems* on pregnant women are not frequently available. I only know of one recorded case, and only in three cases have I myself been able to make examinations.

During the later period of pregnancy in many women, there flows from the vagina, in considerable quantity, a serous fluid, which, the speculum shows us, comes from the os uteri. The time of commencement and the manner of this flow are as variable as are its duration and its quantity. It comes on, for the most part, in the last week of pregnancy, less often in the last months. Krause,* from whom I borrow this assertion, adds: "Never before the seventh month." My case speaks for the possibility of a still earlier occurrence.

HYDRORRHŒA OF THE GRAVID UTERUS.

While the woman is standing or walking, and even occasionally when she is lying quietly in bed, there occurs suddenly a discharge of fluid, without there having been any preceding pain. Only after a very abundant flow does there sometimes occur a pain somewhat like labor, just as if the uterus, having discharged some superfluous matter, contracts and closes intimately upon the embryo. Generally, this, after a short interval, recurs in a less violent degree, and continues to recur until labor begins; occasionally, after having been repeated a few times, it ceases, or a very slight discharge continues. The discharge is at first clear or yel-

* A. Krause, "Die Theorie und Praxis der Geburtshulfe." Berlin, 1853. II. Theil. S. 7.

lowish; later, mixed with blood, and has an animal smell. In the case of a strong, healthy primipara, I collected in the course of the fortnight preceding delivery, about four pounds of fluid.

The opinion that this discharge is the remnant of the hydropertion which is present during the first month of foetal development, and which, having collected between the amnion and the vascular covering, is discharged through a rent in the chorion, is less probable than the hypothesis of Jorg, according to which this "false water," which in many cases is discharged a short time before parturition, originates from the allantois, which still exists as a cavity. The allantois, lying in the same space as the hydropertion, and continuing to exist as a bladder, gives rise to the fact that after birth the foetal membranes seem, in the one case, a little, in another case much more, separated the one from the other.

Other and later authors, resting upon a few facts, have sought to deny *in toto* the occurrence of uterine hydrorrhœa. Ingleby, in 1832, reported a case of hydrorrhœa in which there was found a small opening in the foetal membrane, close to the edge of the placenta, and totally unconnected with the large rent through which the foetus had been born. Dubois observed a similar case. Danyan found the same. On the 12th of December, 1860, a woman was confined in the Maternité. She had during the five weeks preceding labor lost water almost continuously. Danyan discovered almost exactly opposite to the rent in the foetal membranes a round opening three lines in diameter.

This condition, however, does not exclude the fact that the uterus, either when in its most congested state, and the decidua, when enduring so high a vascular pressure, do under favorable circumstances discharge on the exterior of the vascular membrane a portion of the serum serving the purpose of amniotic fluid; or become catarrhally affected, as Rhazes first demonstrated.

I learn with much satisfaction that A. Krause embraces my opinion. Suppose that the true foetal water does originate for the most part from the deciduous membrane, the secretion of which, passing through the two foetal tunics, arrives in the foetal cavity; suppose, further, that the decidua induced by some cause, be it what it may, should quickly produce a greater quantity of water than the foetal cavity is capable of containing, or that the decidua has at any point become separated from the chorion, then will the secretion, instead of passing through the foetal coverings, be forced to accumulate between the vascular membrane and the deciduous membranes. The accumulating transudation follows the laws of gravity, and separates the union of the decidua and the chorion downwards until it reaches the os uteri, and is discharged in a gush. After the discharge, the passage is closed, whereupon the secretion accumulates at the original secreting point, until it again

makes a way for itself outward. If, on the other hand, the passage remains open, or if the secreting point is situated quite near to the os internum, then the discharge does not occur in sudden gushes, but by drops. The occurrence of such an accumulation of the foetal fluid, destined for the foetal cavity, between the uterus and the fruit, is also favored by the fact that, if exhaustion be present, this transudation decreases, whereas where there is extraordinary energy there more is produced than is necessary. In this category belong also the cases* in which œdema of the uterus was the source of the hydrorrhœa. To refer them always, however, to uterine œdema (Höhl) would be wrong.

With Krause, I consider it not impossible that this fluid is occasionally the product of the mucous membrane in the course of development beneath the decidua, from which mucous membrane the old decidua separates itself the more as the end of pregnancy approaches, consequently in such cases the transudation is serous mucus. Rigby was of the same opinion.

C. Braun was the first who examined microscopically the locality of the increased transudation. He found the region of the decidua scrotina, hence the external superior surface of the placenta, covered with a new growth rich in cells, which caused him to deduce the existence of inflammatory irritation. The increased exosmosis is further spoken of by J. Harrison.† He found in every case a fibrous band at the border of the placenta, and refers the water accumulation to the space between the foetal membranes. C. Braun gives further confirmation when he asserted that chronic uterine catarrh is not relieved by pregnancy, and also P. Dubois and Chailly, who found in some women the hydrorrhœa still continuing after parturition.

CASE I.—From my private practice. Mrs. E., in Leipsic, 32 years old, was delivered of her first child by means of the forceps. This otherwise healthy woman was attacked repeatedly with intermittent fever, which was here endemic, and bore in pretty rapid succession three more children; was, however, during the last pregnancy considerably œdematous. The vaginal portion of the uterus was also a good deal tumefied.

On the 31st of July, 1859, her menstruation ceased. During the end of December occurred a mucous discharge from the genitals. In the course of the following days blood was added to the mucus. Without any further cause, hydrorrhœa occurred on

* L. F. Wokaz, "Diss. Exhibens Graviditatis et Hydropis Uteri, Ambiguae Exemplum." Lips., 1813.—J. B. Geil (pres. F. C. Naegele), "Diss. de Hydrorrh. Uteri Gravidarum." Heidelb. 1822.—Paffermann, Lips., 1835.

† British Medical Journal, June 27, 1857.

the 7th of January, 1860, at 7½ P. M. The discharge was also streaked with blood. At 9½ P. M., of the same evening, the midwife removed from the vagina the foetal mass, the membranes being unbroken. Attached to the placenta was a club-shaped fleshy mass; its exterior consisted of young cells, its interior of crude blood coagula. The chorion was raised up as much as three millimetres by the exudation from the internal surface of placenta. At some points the placenta was paler and harder to the touch. At other points were embedded fresh apoplexies arising on the uterine side of the placenta.*

After the puerperal state the woman suffered repeatedly from leucorrhœa, accompanied with an enlarged uterus, which was tender to the touch, and occasionally visited with drawing pains.

In July, 1860, she again conceived. On the 9th of November she had chilly feelings along the back; in the evening, about nine o'clock, occurred all of a sudden a flow of waters, after that for a long time only thin mucus. On the 8th of December she bore a healthy female child, which she nursed for three weeks. Six weeks after her confinement menstruation returned.

CASE II.—Under the care of Professor Crede. A public woman of delicate build, twenty-three years old, was treated here in the hospital until the end of November, 1861, for a syphilitic ulcer of the vulva, and was transferred to the Trier's Institute on account of premature labor in the eighth month coming on. The patient in the few previous days had lost a great deal of clear water, which later became more scanty and bloody. The child was born alive. On the after-birth were seen the membranes, which had only one large rent, but they were discolored, especially on the placenta; the umbilical vesicle, half an inch from the edge of the placenta, was shriveled up between the membranes. On the other side of the decidua, which was drawn together into a thick ridge prominent upon the edge of the placenta, a gelatinous mass ran round the third part of the circumference upon the external edge of the placenta about three lines broad, two lines thick, of a dull yellowish-gray, here and there colored with blood, which could easily be separated in the direction of its long fibres, but could not very easily be torn transversely. This mass showed under the microscope spotted striæ and fusiform bands. With both these kinds of plasma membrane were associated cells, the more prominent of which contained each an elongated, umbilicated nucleus; at one point there were numerous, round, very delicate cells, having a diameter of 0.0057 to 0.0133 millimetres, with hyaline contents,

* C. Hennig, "Ueber die Nebenbänder und Schafhautstränge in der Eihöhle des Menschen, *Archiv. für Pathol. Anat.*, Bd. xix., Hft. 1., S. 200.

and each having from one to three nuclei with distinct outlines, which, upon the addition of acetic acid, became still more distinct, while the plasma membranes cleared up until they disappeared. The nuclei, which in many cases were in the act of dividing, had diameters of 0.0044 to 0.009 millimetres, and contained each one to two nucleoli. I looked upon these cells as the source of hydrometra.

CASE III.—From the clinic of Professor Germann. Mrs. Gressler, of Weimar, forty-three years old, had had very painful menstruations, had had eleven children, four miscarriages, the last in September of the previous year. During the present pregnancy, which had already reached the end of the seventh month, she experienced constant pain in the lumbar region, had no appetite, and the stools were hard and infrequent. In the beginning and middle of October she had considerable watery discharges from the vulva.

Not only in this case, but also in another case of Germann's obstetrical clinique, did hydrorrhœa occur before the seventh lunar month. On the 24th of November labor-like pains occurred, and likewise symptoms of metro-peritonitis. Dover's powder and warm poultices to the abdomen were ordered. Death occurred on the evening of the 27th.

During life hard lumps could be felt posterior to vaginal portion of the uterus, extending as far up as the promontory. They proved to be cancerous lymph ganglia. The uterus presented to the naked eye only upon its posterior surface yellowish-white medullary-cancerous masses, here and there covered by fibrinous exudation. They extended from the ligamenta ovarii outward along the oviducts, which otherwise were not strikingly affected, upon the peritoneum uteri. While the cavity of the foetal membranes contained greenish-brown, turbulent, amniotic fluid, there was found, in the space between the chorion and the decidua, which latter was completely separated from the former, about a table-spoonful of bloody serum, the remainder having flowed away during the discharge.

In this transudation were found, besides blood-corpuscles, which had partially lost their color, cylindrical epithelium, which were 0.076 to 0.095 millimetres long, 0.01 to 0.015 millimetres broad, with one to two round or oval large nuclei. More abundant were round, or elongated, or fusiform cells, having from one to eight large nuclei; some of them changing into hyaline. These cells also, according to the assertion of E. Wagner, to whom I showed the specimen, were not distinguishable from cancer cells. There were also present large round or egg-shaped bodies without nuclei, and in which no nuclei could be made manifest upon the addition of acetic acid. And, finally, there were long, flat fibres, many of

them fusiform, evanescent upon the addition of acetic acid. The decidua was composed of fibres, like those first described, which were plentifully permeated by pearly, flat globules, arranged side by side in rows; and of large, nucleated, irregular, and many-tailed cells, whose nuclei were blood-stained. They resembled in shape granular cells and flat epithelium.

III. CATARRH OF THE PUERPERAL UTERUS.

During the puerperal state, catarrh of the uterine cavity is rare. On many occasions, and, in particular, in institutions where putrefying animal matters are present, and communicated to the pregnant and lying-in women by those present administering obstetrical aid—even when cleanliness of the vagina has been neglected—it becomes developed in a surprising rapidity and frequency, and is communicable as well by contact as by means of the atmosphere.

Thus uterine catarrh is, then, the common cause and true seed of puerperal fever. Instead of the bloody lochia, there is secreted, for several days, almost nothing, or an almost colorless fluid, and then only, with the increasing endometritis, is occasionally bloody or ichorous matter discharged.

Complications of Catarrh of the Cavity of the Body of the Uterus.—The lengthening of the uterine cavity depends more upon the accompanying hypertrophy of the organ than upon a dilatation of the cavity, which, except in cases of hydrometra, with occlusion of the os, can never, on account of the dependent position of the canal, obtain to any extent. West found, in an inflamed and flaccid uterus, over one drachm of pus. Whether catarrh of the cavity can cause a considerable hypertrophy is, on account of the difficulty of the diagnosis during life, still uncertain. We find ourselves here, in many respects, in the same embarrassment as when speaking of the concomitant phenomena of tubal catarrh; and I have, through tedious researches, hardly advanced further than Ch. West,* when he says: "Our means of examining the condition of the womb are very imperfect, compared with those that we possess for investigating the state of other organs; and hence the question often arises, whether the signs of disease which we discover are the cause of the symptoms, or whether they are the index of other and more important changes, or whether they are neither the one nor the other, but mere casual concomitants of graver ailments, concerning whose nature and degree we can, from them, deduce no conclusion."

* Ch. West, "Lectures on the Diseases of Women." Lond., 1856. Part I, page 99.

ETIOLOGY.

In the case of the uterus we can more directly conclude whether, and in what way, its mucous membrane is affected by irritants, because it is more openly situated to the outer world, and is more frequently primarily diseased than the oviducts.

I. *Idiopathic Catarrh*.—Mechanical injuries comparatively seldom affect the non-pregnant uterus, on account of its small size, but as the result of severe injuries, there occurs more frequently hyperæmia, hemorrhage, or inflammation of the serous covering, together with secondary catarrh, than primary and simple catarrh. Still, there are several cases to be found in literature in which mechanical injuries have been followed by primary catarrh. Severe shocks, either physical or mental, are especially injurious during the child-bearing period. If there be therewith great or long-continued excitement of the circulation, as in immoderate dancing, wine-drinking, anger, then there is sufficient cause for the production of uterine leucorrhœa.

Aran told me personally that in Paris he had come to the conclusion that uterine catarrh arises in the rich classes from emotional excitements, especially depressing influences, but, in the poor classes of the population, from tuberculosis of the lungs. I can in this place, as far as my experience goes, confirm this assertion. Violent coition is more injurious than too frequent; often still more so is an unnatural and unsatisfied excitement. Incongruity between the genitals of husband and wife, and the resulting unhappy wedlock, may possibly outrank the previously cited cause.

Physico-Chemical and Atmospherical Irritants.—Too cold, too frequently repeated, and too strong injections more often cause uterine catarrh than does the unskilled sounding of the uterine cavity, as the latter causes rather wounds, hemorrhages or uterine pain—neuralgia or cramp. Not unfrequently styptic agents which have been used to check uterine hemorrhage act as additional irritants. Too warm clothing, too soft a bed, sitting over furnaces, are in part directly, in part through the effeminateness which they cause, injurious, inasmuch as the liability of catching cold is thereby increased. Too sudden changes of temperature are, to susceptible persons, the more injurious in proportion to the highly-excited condition of the uterus, and in proportion to the proximity of the cold-causing or heat-abstracting object to that organ: as sitting upon a cold stone after a fatiguing walk, standing in the moist grass, in a cellar, the going barefoot of such persons as are not used to it. Many women, who otherwise dress themselves very judiciously, have the unreasonable habit of going out in rainy and snowy weather in the thinnest of shoes and stockings; others have the still more pernicious habit, when bathing in a river or

the sea, of going slowly into the water, instead of either first pouring cold water over themselves, or, at least, of bathing the upper portion of the body, and then immediately diving into or running quickly into the water.

Of poisons, the ethereal oils, the strongly bitter and balsamic agents (sabina, turpentine oil, cantharidin, lupulin, copaiba), alkalies, acids, and several neutral salts, have long been in ill-repute. It is well known that some of them—nicotianin,* sulphuric acid,† have been detected in the secretion of the endometrium; of others, it is supposed, and upon good ground, and deduced from the collected experiences in the case of the urinary organs and the rectum, that they act as irritants to that mucous membrane through which they are excreted from the blood.‡ Daily observation shows that others change the character of uterine discharges (cubebin), sometimes curatively, or intensify acute discharges and aggravate chronic ones (sulphates of the alkalies, iodide of potassium, muriate of ammonia).

During pregnancy, infection with blennorrhœal secretion, as a result of connection, may act injuriously; in childbed, the remaining behind of a portion of the placenta or of the membrane, and the endeavors to remove these, as also the operations which, during parturition, may have become necessary, tilting over of the uterus, the poison of a cadaver, or of a disease which may be introduced by the finger of the examiner, exposure to cold, mental emotions, badly-ventilated rooms, damp atmosphere, and drastic medicines.

II. *Catarrhus Deuteropathicus*.—1. *Symptomatic*. (a) Flexures and curvatures of the uterus are decidedly more injurious than are changes in its position, for by changes in its form there is caused a more or less stasis in the blood and lymph-vessels, and, in an aggravated case, the excretion will be retained in the uterine cavity.

Among my twenty-eight cases of catarrh of the uterine cavity were three cases of flexure, and once the body of the uterus was swollen so as to be a case of hydrometra.

(b.) The uterine cavity I found reduced in size several times through hypertrophy of the connective tissue and of the muscular layer, once through an adhesion of the opposite mucous surfaces in the right horn of the uterus, once through a submucous fibroid; in old persons, often through ecchymoses, cysts, polypi, and tufts.

* Melier, *Bull. de l'Acad. de Med.*, x. p. 585; and Wertheim, *Zeitschrift der Ges. der Aerzte zu Wien*, Jan. 1851.

† *Med. Gazette*, May, 1828.

‡ C. Hennig, "Chemische und pharmakologische Prüfung des Gummi Kino," *Archiv der Pharmacie*, cxxiii., Bd. 2, S. 158; und *Arch. für Physiol. Heilkunde*, xii., S. 612.

Concerning the constrictions and occlusions of the internal os we shall speak more particularly later.* At present we will merely state that in three cases dropsy of the uterine cavity was found.

2. *Sympathetic.* It is perfectly obvious, from the greater frequency of tubal catarrh over catarrh of the uterine cavity, that tubal catarrh is more often produced by uterine catarrh than is uterine catarrh by leucorrhœa tubaria; as an anatomical proof, we mention the difficulty with which viscid mucus passes through the oviducts into the uterus through that very narrow portion of the tube which is situated in the substance of the uterus. Furthermore, it must be borne in mind, that the cause of irritation for the mucous membrane is more surely transmitted from tissue to tissue than through the medium of a mucous vehicle.

3. Catarrh is a result of congestions and hyperplasmas (muscular hypertrophy, fatty degeneration), and of heterologous affections of the uterus, whether it be cancer, tubercle, cystosarcoma, or a dermoid tumor.

While I admit that gonorrhœal catarrh of the uterus frequently produces a mucous secretion in the oviducts, yet I venture to doubt that that tubal mucous secretion is infectious; otherwise it would, by its very pertinacity, through the continual current uterineward kept up by the ciliary movement, re-excite gonorrhœal catarrh in the already cured uterus. The analogy is also wanting in the case of men patients. How very often there remains, after the disappearance of the urethral gonorrhœa, a swollen condition of the prostate gland, catarrh of the bladder, or a tendency to inflammation of the epididymis, without there being caused, through a renewing of the inflammation in the last-mentioned part, or even through a rekindling of a mucous discharge from the bladder, a second renewal of the affection in the urethra.

As regards gonorrhœa of the uterus, it is in any given case difficult to say whether it is primary, that is, caused by immediate reception of the blennorrhagic mucus from the urethra of the male, or has occurred secondarily, that is, communicated from the vagina to the cervix uteri, and so on further up. It is also supposable that frequently simple catarrh of the uterus or phlegmorhœa of the vaginal portion accompanies vaginal gonorrhœa.

Inflammation and foreign growths of the tubes, of the ovaries, or of the uterine ligaments (peritonitis), frequently also cystitis, are accompanied by a uterine mucous discharge. Still more intense than those are the effects in individual cases of peritonitis and severe intestinal catarrh, cholera, and enteritis, together with diarrhœa. Here may be mentioned also the pelvic abscesses so frequent as compared to the very seldom occurring abscesses of

* Compare "E. Wagner, der Gebärmutterkrebs." Leipzig, 1858. S. 44.

the uterine substance, and whose precursor and companion uterine catarrh may be.

Uterine catarrh occurs secondarily from rigidity and occlusion of the uterine arteries, from capillary embolus, and from dilatation of the veins; the latter frequently the result of overdistension and relaxation of the veins of the pelvis in general and of the hemorrhoidal veins in particular. The walls of the veins are thereby rendered thin, their power of contraction diminished, and they are occasionally in a state of fatty degeneration. This condition is produced by an improper use of burnt coffee, in a less degree of tea, by an excessive use of sleep-inducing drinks and warm soups, by long-continued constipation of the bowels or by the misuse of powerful cathartics, or follows as a result of frequent and difficult labors. It often leads to thrombosis of the hypogastric and uterine veins.

According to my experience, such conditions are also caused by abnormal depositions of fat in the periuterine cellular tissue. They also accompany unalterably most cases of heart disease, severe cases of emphysema, tuberculosis, frequently, also, Bright's disease, and serious diseases of the liver and spleen. Consumption is also the cause of uterine catarrh in those cases in which the pressure of the blood in the pelvic vessels is increased; it is, nevertheless, worthy of notice that tubal catarrh is more often found in connection with tuberculosis of the lungs, than is uterine catarrh. To what extent the scrofulous diathesis favors the occurrence of uterine catarrh, I am not in a position to say.

I am firmly convinced that chlorosis, hydræmia, typhus, and the acute exanthemata, give rise to and maintain it.

During childbed, uterine catarrh is so rare that in the lying-in asylums of this city I have never seen it, except during puerperal fever. Among the poorer classes, where the mother often rises upon the first or second day after parturition and scrubs her room and makes her coffee, it occasionally occurs. Puerperal tubal catarrh forms to this a striking contrast, although it is also comparatively rare.

CONSEQUENCES AND RESULTS.

I am authorized in the opinion that uterine catarrh gets well easier than tubal catarrh. Thickening, roughness, and inflammation of the peritoneum of the uterus occur often enough simultaneously with catarrh of its cavity, or with traces of it, not to excite attention. Granted that catarrh is often a result of metropéritonitis, we have still, also, cases of old catarrh and recent peritonitis, and besides that the fact that primary inflammation of a serous membrane is rare, especially in the case of the peritoneum. Now, we meet with in the catarrhal uterus only occasionally hyperæmia or inflammation of the parenchyma; therefore the

peritoneal irritation originates from either an acute catarrhal inflammation which has been associated with uterine hyperæmia, or from an irritation of the mucous membrane, which was simultaneous with a physiological uterine hyperæmia, namely, menstruation or pregnancy.

And, in fact, there are complained of, especially at the time menstruation begins or is about to occur, and likewise frequently in the first part of the last months of pregnancy, pains which point to a stretching of the inflamed serous covering combined with meteorism and constipation, and to a rupturing of the already formed adhesions and bands, as we almost daily in leucorrhœal women can conceive of, even feel and after their death find. Too often these dragging pains are considered labor pains or nervous colics.

And should this mode of propagation of the irritation be the exceptional one, there is no difficulty in coinciding with the belief of celebrated authorities, that catarrhal excitement in the uterine cavity is followed by corresponding participation on the part of the tube, and its fimbriated extremity is the point in the human body where mucous membrane and serous membrane, without anything intervening, border the one upon the other. This so dangerous approximation only occurs on one other occasion, namely, at the time when the ruptured Graafian follicle of the ovary has not yet closed again.

The oviducts suffer, therefore, most severely when the catarrhally swollen or even irritated mucous membrane of the uterus closes up their uterine openings. In this connection may be considered—

DROPSY OF THE UTERINE CAVITY (ACCORDING TO RHAZES).

It is relative in its character when the internal os is only occasionally constricted, or is occluded in such a manner that under favorable circumstances it again becomes pervious, as for instance, through spasm of its circular fibres, through acute swelling, or a casual forelying polypus of the mucous membrane, or through flexure. Otherwise it is absolute. Only in one of these three cases was the right tube impassable; therefore the contents of the uterine body could have discharged itself through the left tube, if this procedure were so easy of accomplishment; in the other cases the interstitial portions of the tubal canals at least were constricted.

In two cases the contents of the hydrometra had a slightly acid reaction; in one it was gelatinous and transparent, in the other serous and opaque. In the third case the very abundant mucus was alkaline, and contained great numbers of epithelium from the glands and cells from the surface of the mucous membrane.

The uterus is more often hypertrophied than by pressure of the fluid atrophied. We shall see later that highly developed Nabothian bodies in the cervical canal also obstruct the discharge of the uterine mucus.

The muscular tissue of the uterus from oft-repeated hyperæmia and from serous infiltration, both of which conditions in a more or less degree attend catarrh, becomes softer and weaker, or from repeated endeavors to rid itself of the contents of the cavity of the body, hypertrophied. A mixed condition is brought about by hyperplasia of the connective tissue, which is known as "chronic infarction."

The mucous membrane during chronic catarrh undergoes very appreciable changes. It becomes permeated by varicose vessels, and scattered through it are ecchymoses and deposits of pigment; it loses its ciliated epithelium, or the ciliæ do not move regularly. The tubular glands become producers of fat and hyaline instead of healthy epithelium, and finally many of them, their emunctories being occluded, become changed into cysts, several of which, the one alongside of the other, may form into a common cone which may become detached. They may form "cellular" or "vesicular" polypi with broad or pediculated basis.

In all cases, the general health of the patient suffers; the frequent pains and discharges, but especially the sleepless nights and fatty digestion, reduce even the stronger patients.—*American Journal Obstetrics, etc.*, May, 1872.

A Plea for the Antiphlogistic Treatment of Disease. By EDWARD MONTGOMERY, M.D., St. Louis. Read before the Medical Association of the State of Missouri.

In presenting a few thoughts on the antiphlogistic treatment of disease, I would explain that I use the term, "Antiphlogistic," because of its comprehensiveness, and the ideas it is intended to convey being so well and so universally understood, and not from its etymology or the doctrines and theories, now perhaps obsolete, which it was formerly believed to denote. I also wish it to be distinctly understood that I do not hold bloodletting to be the chief, principal and main remedy in the antiphlogistic treatment; but that I also recognize purgatives, mercurials, arterial and nervous sedatives, anodynes, anti-zymotics, anti-toxæmics, refrigerants, diuretics and diaphoretics, and an appropriate dietetic and general hygienic regimen, as all going to form this system of therapeutics.

There is no doubt but that a great amount of the obloquy and disrespect cast upon this system of medication arises from the false ideas and wrong constructions put upon it. It has been construed

to imply bleeding, *ad deliquum*, mercurialization to salivation, purgation to hypercatharsis, etc.; and this depleting and debilitating system to be kept up to the end of the case, with little regard to stage or type of the malady, or the age, idiosyncrasy or constitution of the patient. Hippocrates, Galen, Areteus, Oribasius, Alexander of Tralles, Paulus Aegenita, Cælius Aurelianus, John Fernel, Sydenham, Cullen, Boerhaave, Gregory, Andral, Rush, Physick, the Hunters, Mead, Marshall Hall, Trousseau, Dunglison, Watson, Atkin, Copland, Tweedie, Williams, and, in short, all the principal authors of ancient and modern times, have advocated the antiphlogistic treatment of inflammatory diseases; and yet we are to set no value, attach no importance to the experience of the past, or the clinical knowledge of our learned predecessors. It is rather suggestive that the antiphlogistic treatment was ridiculed and opposed by the arrogant mountebanks who persecuted Galen during his residence at Rome; and during the dark ages it was almost forgotten, together with the learning of the Greek sages, and instead there was substituted the alexipharmics and superstitious forms and manipulations of the Arabian doctors. Early in the sixteenth century bloodletting was again brought into notice by Pierre Brissot, of Paris, who published a treatise under the name of "An Apology for the Employment of Bloodletting in Inflammatory Diseases, especially Pleuritis." It appears there was a severe epidemic in France at that time, attended with great fatality, which was supposed to be a pleurisy or pleuro-pneumonia—most likely the latter, from the mortality attending it, and Dr. Brissot, sadly contemplating the unsuccessful treatment then in vogue, resolved to try the long-neglected and almost forgotten system of depletion practiced and recommended by Hippocrates, Galen and Areteus, and, meeting with wonderful success, he wrote the treatise advocating the copious abstraction of blood. Although the revival of this system met with stern and systematic opposition, it was, doubtless, Pierre Brissot to whom the credit belongs of again popularizing the system in Europe in the year 1525. In the year 1601 was born Guy Patin, a very learned and accomplished physician of Paris, who turned out to be one of the most daring and boldest phlebotomists the world ever produced. He boasted of curing his own son of a continued fever "by twenty-three bleedings from the arms and feet, with at least a dozen good purgatives of cassia, senna and syrup of pale roses." . . . "About the year 1633, M. Condinot, now first physician to the king, was attacked with a severe and violent rheumatism, for which I bled him sixty-four times, after which I purged him, and he was completely cured." He also relates the case of a boy, aged seven years, whom he bled thirteen times and cured of a pleurisy.

About the middle of the sixteenth century, Leonard Botullus also boldly advocated free venesection in a great variety of diseases,

and among all classes of patients. He carried the idea so far as to advise that an infirm old man should be bled from four to six times a year, and that it was a good custom to open a vein every six weeks in young and healthy individuals. Although the Paris Faculty very properly condemned his practice as dangerous and heretical, he was said to have met with great success, and to have cured a great number of patients.

Dr. Gregory, of Edinburgh, used to relate to his students the case of a young girl who was bled to one hundred and thirty ounces within a few days before her disease (pleurisy) was subdued; and also the case of Dr. Radcliff, who in one day was bled to the extent of one hundred ounces, and adds that he (Dr. Radcliff) at least was no fool; for had he not felt assured that the depletion was necessary for the cure of his disease he would not have permitted it.

Dr. Boulland advised bleeding *coup sur coup* in pneumonia, and determined the medium quantity to be taken in three days at from ninety to one hundred and twenty ounces. Of one hundred and two cases treated in this way, ninety were cured and twelve died; average duration of the disease, nine to thirteen days. It is stated in Dr. Samuel Cooper's work on surgery, that in surgical annals many cases are given where patients were rescued from death by means of bloodletting to the amount of two or three hundred ounces within the space of two or three days. Dr. Watson relates in his lectures the case of a robust young man whom he saw bled at once to the extent of seventy-two ounces for the cure of general dropsy of recent date. This occurred in the Edinburgh Royal Infirmary, and the patient not only survived the heroic treatment, but was promptly cured. Dr. Tweedie, in the *Encyclopædia of Practical Medicine*, says that he bled a patient suffering from pericarditis, to the amount of sixty ounces at once, with decided relief; and yet our modern medical reformers totally condemn all the antiphlogistic remedies in this disease. Dr. Rush, of Philadelphia, speaks of bleeding a four-year-old boy four times in one day, and quotes Dr. Physick approvingly for bleeding a child aged three months three times in one day and giving it half a drachm of calomel in the same space of time. The child had croup, and not only resisted this barbarous treatment, but actually got well. We all know of the enormous quantities of calomel, tartar emetic and lobelia which were administered by our own physicians thirty years ago; but whilst condemning and repudiating this exhausting and debilitating treatment, we should learn from it that abstracting a few ounces of blood, or giving a few doses of calomel, tartar emetic, or veratrum viride, is not fraught with such direful consequences as Homeopaths and Expectants would have us believe. If patients not only survived, but actually made good recoveries after such extravagant use of the lancet, nauseants and purgatives,

the antiphlogistic treatment, judiciously employed, cannot be such a dangerous system as represented by Tod, Skoda, Bennett, Tanner, etc. All engaged in extensive practice will have observed the frequent extensive hæmorrhages and great loss of blood sustained by paturient women, by parties wounded, and by those attacked by severe epistaxis, hæmatemesis, etc., and their rapid and complete recovery from these severe depletions. These facts go to prove that bloodletting is not the dangerous remedy some writers would lead us to believe; and this will be still more apparent when we remember that when we employ bleeding as a remedial measure, it is always in those cases of acute sthenic inflammations which bear depletion with such wonderful impunity. The same holds good with regard to the other antiphlogistic remedies. We all know with what tolerance the sufferer with pneumonia will take free and frequent doses of tartar emetic, or veratrum viride; and to what an extent purgatives can be administered to patients with encephalitis, not only without producing debility, but, on the contrary, reanimating and reviving their wonted energies. We would appeal to the deliberate reflection and calm judgment of every experienced physician, and ask him how often he has witnessed cases of acute sthenic inflammation injured by the antiphlogistic treatment; and, on the other hand, how many times he has had reason to regret the omission or inadequate employment of these measures. We are firmly convinced that for the last twenty years this treatment has been greatly overlooked or neglected, to the manifest detriment of the patient. Many cases might have been shortened, and much suffering, and in many instances permanent injury, might have been avoided by a timely, efficient and judicious application of this system of therapeutics.

There is a great tendency in the human mind to go into extremes; in medical science especially, opinions, theories and systems cannot maintain a middle course, but, like the vibrations of the pendulum, they must swing from one extreme to the other. There is no doubt but that venesection and most of the other antiphlogistic remedies were carried to great excess from the beginning of the sixteenth to the middle of the nineteenth centuries. From the writings of Pierre Brissot, Guy Patin, Leonard Botullus, John Fernel, and others, the depleting system of treatment was carried to great excess; but for the past twenty years the fashion has changed, and an extremely opposite system has extensively prevailed. Not only are venesections, mercurials, antimonials, purgatives and arterial sedatives almost entirely ignored, but a most demoralizing and unscientific system of stuffing and stimulating has been inaugurated and extensively practiced, the consequences of which have been lamentable and deplorable. Thousands of patients have been advised by their physicians to take a little brandy, gin, or rum, a glass of iced champagne, or pale sherry;

or, if in the poorer ranks of life, an occasional dram of "old Bourbon," to keep up their strength and assist nature in throwing off the disease; and by this supporting treatment, as it is called, many are seduced into a state of chronic alcoholism, or at least a constant indulgence in the use of intoxicating beverages. This is one of the most deplorable results of the great rebound from the antiphlogistic to the so-called restorative or supporting system of medical practice. In almost every disease, whether pneumonia or typhoid fever, pericarditis or hysteria, whisky or wine, brandy or gin enters largely into the physician's prescriptions; a venesection or a blister, tartar emetic or calomel, would now be sneered at and condemned as antiquated, barbarous and vulgar, by the fashionable doctors of the present day; whilst alcoholic stimulation and high feeding are alike recommended for the patient laboring under an acute attack of pneumonitis, endocarditis, or typhoid fever. How potent is the influence of fashion, how strong the desire for everything that is novel and miraculous! If Cullen or Gregory, John Fernel or Benjamin Rush, could now witness the treatment of a pneumonia or a cerebritis with alcoholic stimulants and a most generous diet, the circumstance would seem to them most wonderful and inexplicable; but the ultra depletions and purgings of Guy Patin and Botullus have been superseded by the stimulating and stuffing of Tod and Bennett.

There is no doubt but that this great rebound from an excessive perturbing and debilitating to an excessive stimulating and over-feeding system, has partly resulted from the enormous extent to which the former system was carried during the past three centuries. As before intimated, there seems also to be an impression that the antiphlogistic treatment means an unvarying and uninterrupted course of bleeding, purging, nauseating and starving; whereas the scientific and judicious application of this system is very different from that. Hippocrates, Galen and Aretæus gave very good rules for depletion and contra-stimulants; and it was only because the sound doctrines and clinical experience of the Greeks were forgotten in the dark ages that this system became obsolete. But in the erudite period, when Fernel and others revived the doctrines of the schools of Cos, of Pergamos, and of Alexandria, the depleting practice was carried to such excess by Brissot, Guy Patin, Botullus, and others, that even to this day this practice is confounded with a most devitalizing and perturbing one; so that a directly opposite course of supporting, stimulating and temporizing has very naturally occupied the minds of men so prone to swing from one extreme to the other. As first prominently set forth by Hippocrates, depleting remedies should only be given in the very first stages of the attack. In pneumonia, for instance, if venesection and veratrum viride are not employed in the very beginning of the disease they can do no good, but will certainly

do great harm. If the plastic fibrinous exudation be already formed, bleeding and arterial sedatives are not indicated; but calomel, opium, tartar emetic, the iodide of potassium, etc., may, and we believe will, assist in producing resolution; or, if that is impossible, will circumscribe and modify the purulent infiltration. It should also be borne in mind that it is only in acute sthenic pneumonia in a vigorous subject that we would use venesection at all; in other cases, cups or leeches, followed by warm poultices or stimulating liniments, will take the place of large bleedings and extensive vesication. As soon as the high inflammatory symptoms are subdued, or whenever signs of prostration ensue, we believe there is no inconsistency or incompatibility in following our depleting measures with nutrients and tonics, such as quinine, carbonate of ammonia, tonic bitter infusions, cod-liver oil, beef essence, raw eggs, milk, etc.

The experiments of Beale, Sticker, Bilroth, Rindfleisch, and especially of Cohnheim, make it evident that we as yet know of no remedy which will disperse or dissolve the migratory white blood corpuscles after they have passed through the coats of vessels, and become densely packed in the adjacent parenchymatous tissue; but before these changes take place we may, by a judicious selection and use of antiphlogistics, prevent, to a great extent, the force and pressure of the blood on the inflamed part, the dilatation of the vessels, which affords an easy exit to the migratory corpuscles, and consequently circumscribe and curtail the extent of the exudation. Although histologists do not positively assert that the migratory colorless blood corpuscles do constitute the whole pabulum of the inflammatory exudation, yet they do aver, "that the transition of the inflammation into suppuration is impelled by the unlimited continuance and superabundance of the formation, whereby in a short time a really colossal amount of young cells are furnished. The impulse to suppuration of the inflammatory infiltrate is also in many cases chiefly to be sought in the great intrusion of juices to the inflamed part, hence our antiphlogistic therapeutists always pre-eminently endeavor to prevent this intrusion of juices, or at least to diminish it." (Rindfleisch, page 112.)

Now, Dr. Bennett's strongest argument against the antiphlogistic and in favor of the supporting treatment is, that we cannot curtail or diminish the exudation, but by stimulants and nutrients we can hasten the suppurative process and get rid of it in that way, which he says is the natural process. But we submit that we may to a great extent prevent the great intrusion of juices and lessen the colossal amount of young cells, as Rindfleisch expresses it, and so circumscribe and limit the exudation that resolution may ensue, or even if suppuration takes place it will be to a more limited extent, and, of course, fraught with far less danger to the patient. In the commencement of any inflammatory disease, if the patient is not

too young, too old, or too feeble for antiphlogistics, we bleed, give veratrum or aconite, and purge so as to limit the accumulation of these young cells and prevent the flow of juice to them, so as to circumscribe the inflammatory infiltrate and encourage its resolution, or, if that is impossible, limit the extent of purulent infiltration. After the stage of hepatization, as it is called, has been fully developed, we believe that the careful and judicious use of tartar emetic, calomel and opium will accomplish much good in assisting the natural processes to get rid of the fibrinous exudation.

Late physiological experiments seem to indicate that we may also do much to overcome the danger of the inflammatory exudation by giving cod-liver oil, which may hasten fatty degeneration, whereby it (the exudation) is turned into a "milky detritus," which can be absorbed. This reminds me of the fact that there is no scientific inconsistency in giving cod-liver oil and tartar emetic to the same patient at the same time; or in using quinine and venesection, or administering mercury and nutrients. We bleed, give purgatives and veratrum viride to lessen the amount of blood, prevent its local engorgement, quiet the action of the heart and arteries, allay irritation and give ease and repose to the general system, and immediately give quinine, cod-liver oil, bitter tonic decoctions and nutritive drinks to promote fatty degeneration of the cellular element of the inflammatory infiltrate, to limit or prevent purulent infiltration, to aid absorption, and to obviate the tendency to death by septicæmia, abscess, gangrene, or asthenia.

In order to illustrate what we mean by the antiphlogistic treatment of inflammatory diseases, we will give a brief outline of it in a few of the diseases in which this treatment has generally been adopted. At the commencement of a case of acute sthenic pneumonia in a robust subject, we would use venesection until approaching syncope, the patient sitting up; we would at once give a cathartic of calomel and jalap, unless the patient had been already purged; we would apply cloths wrung out of ice-water to the chest, and we would endeavor to keep the action of the heart and arteries quiet with aconite or veratrum viride. The venesection we hardly ever repeat, but might apply leeches or scarified cups. In the second stage we would keep the chest enveloped in a large flaxseed poultice, give small doses of tartar emetic, and two or three grains of calomel with one grain or half a grain of opium every three hours, taking particular care not to push the mercurial to salivation. In this stage a mixture of carbonate of potassa, syrup of senega and aqua laura cerasi will soothe the cough and counteract the viscid tenacity in the throat. Toward the advanced period of this stage cod-liver oil and quinine should also be freely administered, together with beef tea, soft boiled or raw eggs, cream, etc.

In the stage of purulent infiltration we would give cod-liver oil, quinine, vegetable tonic decoctions, carbonate of ammonia, and nutrients.

In the advanced stages of all cases we would give an occasional dose of some diuretic, as nitre and taxaxicum, fluid extract of cubebs, or of Pareira Brava. Blisters may now also be required and often do much good.

In cases of asthenic pneumonia, of course we would never resort to venesection; but in some instances cupping or leeching may be called for; opiates if much pain, cod-liver oil, quinine, tonic decoctions, carbonate of ammonia, with gum and infusion of wild cherry bark, and the large flaxseed poultice all around the chest; beef essence, eggs and cream.

In pleuritis, the packing with ice-cold cloths will be very apt to limit the inflammation; but if the patient is very plethoric and robust, a venesection will be of great service. Cups or leeches, followed by the large poultice, a small, frequently-repeated dose of tartar emetic, some calomel and opium, and in some cases fly-blisters.

In enteritis, if the patient is not too young, too old, or too feeble, the antiphlogistic treatment will also be appropriate; but here we must beware of purgatives; if we must give any, the oleaginous emulsion will be the most suitable and appropriate. Venesection, cupping or leeching, must only be resorted to if the case absolutely demands them, and they must only be employed at the very commencement of the disease. In this disease opiates are the sheet anchor; a combination of morphine and ipecacuanha is, we think, *the remedy* here; and there should be enough of the morphine administered to keep the patient perfectly calm and free from pain, even if it requires partial narcotism to do that. The constant application of warm emollient poultices to the abdomen will also be useful; very particular attention must be given to the diet and drinks allowed, both of which should be of a non-irritating and antiphlogistic character. In all inflammatory affections of the abdominal viscera, ipecacuanha, with opiates, will be found to have most happy effects—in acute dysentery, in hepatitis, enteritis and peritonitis, these medicines are invaluable. Dr. Hamilton, of Lynn Regis, Dr. Armstrong and Dr. Stokes all deserve credit for urging the claims of opiates in inflammatory disease. Dr. Stokes is quite enthusiastic in his praise, especially in enteritis and peritonitis; and to Dr. Alonzo Clark, of New York, the profession in this country are deeply indebted for so emphatically calling their attention to this remedy in *post partum* inflammations. As early as the year 1764 Dr. Hamilton wrote an article in praise of calomel and opium as an antiphlogistic remedy, especially in acute rheumatism, of which monograph Dr. Armstrong declared it should be written in letters of gold; and notwithstanding the

efforts of those in favor of a homœopathic or an expectant method of treatment to cast discredit on this remedy, it is certainly one of the best and most efficient antiphlogistics we possess; of course, it is a combination which will very readily produce salivation, but this should be sedulously guarded against. In cerebritis, or, indeed, in any form of encephalitis, opiates should be used with great caution, and in a majority of these cases they are entirely inadmissible. Even venesection is rarely practiced in these cases; cups, leeches, blisters to neck, sinapisms to the spine and extremities, ice to the head, catharsis, with croton oil, aloes, gamboge, scammony, black hellebore, colocynth, calomel and jalap, or elaterium; and if the case is prolonged, iodide or bromide of potassium may be tried. In the epidemic cerebro spinal meningitis we have great faith in calomel and Dover's powder, sulphate of quinine and bromide of potassium. We first apply scarified cups to the back of the neck, sponge the head and neck with ice-water, give calomel and Dover's powder until the violent symptoms are subdued, then give large doses of quinine, alternating with full doses of the bromide of potassium. We cannot suppress the declaration, that those physicians who recommend an expectant or a supporting treatment to cerebritis or cerebral meningitis are seriously jeopardizing the lives of their patients; their treatment is but "a meditation on death." It is true that many cases of cerebritis and cerebral meningitis will have passed into effusion, softening, or even abscess, before we are aware, or before our treatment commences; but even then, cups, blisters, purgatives and iodide of potassium can do no harm; but the supporting treatment can do no good when the disease has progressed this far, and will do a great amount of harm if it has not. Suppose we are called to a patient with severe headache, intolerance of light and sound, the pulse accelerated and hard, the heat of skin above what is normal, nausea and perhaps vomiting, constipation, a peculiar feeling in one or more of the extremities, as if the nerves were ligated, and perhaps spasmodic twitchings or convulsions. Now, although we cannot say positively whether in this case we have only a hyperæmia, a cerebral congestion, an exudation, or ramollissement, it is plainly our duty to administer a purgative at once; and if the patient is young and robust we should also resort to venesection, or cup, or leech, and follow these measures with iodide of potassium, and apply ice to the head and sinapisms to the extremities; for if there is a clot already formed, or if there is softening or abscess, these prompt measures will do no harm; and if the case is only one of congestion or incipient inflammation, our active interference will likely arrest the disease, whereas if an expectant or a stimulating treatment is adopted, the disease may naturally progress or be aggravated into irremediable effusion, softening, or abscess. Whilst writing this, my attention was acci-

dentally called to a case reported in the January number of the *London Lancet*, page 43, which vividly illustrates the happy effects of an antiphlogistic treatment in a case of great gravity. W. W., aged fifty, had been in bed all day, got up and went out at 7 P. M., when he fell down suddenly and was totally unconscious and could not be aroused. His pupils were dilated and insensible to light and touch, his breathing stertorous, the pulse hard and quick; he was bathed in perspiration, and the countenance was livid. . . . He was bled from the arm to 18 ounces without delay. As the blood was flowing there was a marked improvement in the symptoms; the breathing ceased to be stertorous, the countenance became less flushed, the pulse weaker; the patient, however, did not recover consciousness; but as matters progressed so well he was sent into the wards, where he was ordered to take a minim of croton oil, also five grains of the bromide of potassium every four hours, and to have ice applied to the head. He gradually recovered without any paralysis or any loss of power or sensibility of any of his limbs.

Drs. Bennett, Tanner, Flint, and others, who are such advocates of the supporting treatment, are continually harping on the great danger of the patient dying from debility, when the facts are that persons laboring under these inflammatory diseases, properly speaking, rarely ever die of asthenia. It would be about as correct to say that a man dying from a gunshot wound in the bowels, or a bayonet stab in the lungs, was dying from debility, as to designate the fatal termination of most of these cases of inflammation as "death by asthenia." If we fail to circumscribe or modify the inflammatory process, congestion, effusion, purulent infiltration or abscess will soon destroy life, and all the whisky and brandy in the universe will be perfectly powerless to sustain the organic and vital functions. In our overweening anxiety lest antiphlogistic measures should weaken and exhaust the patient, let us not forget that unrestrained and prolonged inflammation will soon accomplish that work, and without the least hope of reprieve or remedy.

But we deny that antiphlogistics judiciously employed in the proper stages of appropriate cases tend to produce death by asthenia; even in pneumonia, the typical disease so much depended upon by Todd, Bennett, Skoda, Dieth, etc., to prove the danger of antiphlogistic remedies, if a venesection is employed to relieve the pain, dyspnoea, pulmonary or cerebral congestion, or if veratrum viride is administered to lower the hard, rapid pulse and reduce the hyperpyrexia, will the patient be in any more danger of death by asthenia than if these remedies had not been employed? Certainly not, but the condition of the patient will be so much improved by them that in such conditions, instead of being depleting and debilitating measures, these means appear as restoratives; and let it be remembered that many remedies which we

claim as acting as antiphlogistics in inflammatory diseases, are really restoratives and tonics. In many instances even venesection may act as an indirect tonic by promoting absorption, encouraging the action of nutrients and medicines, removing engorgement, congestion, etc. Calomel also often counteracts debility by promoting the secretions, improving nutrition, aiding resolution, etc. We presume no one will gainsay the tonic properties of cod-liver oil and quinine, and yet we claim them as most excellent antiphlogistics; the former by its producing fatty degeneration of the cellular elements of the inflammatory plasma, reducing it to a milky detritus which is speedily and easily absorbed; the latter, by its antiseptic, antizymotic and antipyretic properties. Quinine arrests putrefaction, it destroys fungi, and, indeed, all low organisms, animal and vegetable; it counteracts the tendency to supuration, lowers the fever heat, diminishes the oxidation of tissues and the excretion of urea, and, of course, counteracts tissue waste. (See experiments of Harley, Ranke, Kerner, Binz, Calvert, etc.)

Digitalis, tartar emetic, and the refrigerants, saline aperients, bisulphite of soda, the ice-bag and cold water baths, when they are only used at proper stages in appropriate cases, do not act as permanent prostrating remedies, but, on the contrary, often remove pathological conditions which would soon result in irremediable prostration.

On the other hand, will alcoholic stimulants sustain and support the strength of the patient laboring under inflammatory disease; or will they circumscribe or modify the destructive processes and fatal tendencies of inflammation? We do not believe that they have any lengthened strengthening virtues, but are merely artificial, temporary stimuli, increasing for a short time the vital activity, but soon followed by a corresponding depression of power. One of the effects of inflammation is a perversion of the nutrition of tissue; and it is generally agreed amongst physiologists that alcoholic stimulants are not subservient to the nutrition of tissue. One of the effects of inflammation is to increase fever heat, and Professor Parkes and Count Vollonwitz have proved by experiments that these stimulants are not depressors of temperature or of fever heat.

Alcohol when taken into the stomach is quickly absorbed and enters the circulation, from whence a part of it escapes with the secretions and part is probably burnt in the lungs, its carbon uniting with the oxygen of the inhaled air to form carbonic acid, and its hydrogen similarly combined to form water. This combustion in the lungs can scarcely be salutary in the phlegmasiæ; their healthy action will be obstructed, the formation of effete materials increased, and thus a tendency to congestion, exudation, etc.

As to its claims as a nutrient and tonic, Dr. Chambers says: "Alcohol is really the most ungenerous diet there is; it quickens

the heart, causes capillary congestion, irregular circulation, and disposes to exudations and engorgements." "Alcohol arrests and obstructs the vigor of vital action; by it growth is checked, as we see by animals kept artificially small by its use when young; and also in men who early in life have indulged in ardent spirits; this very indulgence blunting their appetite for more nutritious substances. . . . It is very obvious that under its use renewal goes on slower, as we know by the diminished excretion of urea water, bile, etc., and we can hardly, therefore, expect it to be advantageous where the continual renewal of vital power is our primary object." There is no doubt, therefore, that most of the credit given to alcoholic stimulants as supporting remedies is due to the eggs, milk, beef essence and other nutrients which are generally given between the doses of wine, brandy or whisky. It is certainly not good practice or in accordance with sound physiological principles to give these stimulants at the same time as the nutrients, for it has been abundantly proved that alcohol does not aid digestion. It, on the contrary, very materially retards and interferes with it; instead of dissolving the food, it hardens and coagulates the protein compounds in the stomach; precipitates the pepsin so as to render digestion exceedingly difficult. Every physician of large experience, especially in city practice, will often meet with patients who wish for advice for what they term dyspepsia, or perhaps biliousness, or liver complaint; they will tell you they have not the least appetite for breakfast, very little for dinner, but can manage to eat a little at supper, but even that lies heavy on their stomach and does not seem to nourish them; they will also tell you that if they force down a little breakfast they almost invariably vomit it up again. When such patients as these consult me, my first question to them is: Are you in the habit of taking stimulants before your meals? The invariable answer is, "Oh, yes; if I did not take a little whisky or brandy to stimulate my appetite I would be unable to eat a morsel." My advice to them, then, is that if they will certainly abandon the use of all stimulants I will try and relieve them; but if they persist in their use I can promise them no permanent benefit. But Professor Bennett's theory is, that stimulants give tone and power to the weakened action of the heart and to the organic functions generally, and are especially beneficial in pneumonia and other inflammatory diseases, because they assist in carrying forward the natural processes of inflammation. He contends that the inflammatory infiltrate or plastic exudation cannot be got rid of except by suppuration, and as stimulants hasten that change they are, therefore, especially indicated in this class of diseases. If Dr. Bennett is certain of such happy effects from stimulants, why does he not give them more freely, or why should he confess that he

thinks that it was overstimulation which caused Dr. Tod to lose one patient in every nine of his pneumonia cases?

The fact is that, although the Edinburgh professor has done more to popularize the stimulating treatment than any other man living, he does not carry out his theory so thoroughly as is done by a great majority of his disciples. In many of his published cases of pneumonia he gives no stimulants at all, but prescribes small doses of tartar emetic or colchicum and spirits of mindererus, acetate of potash, nitre infusion of serpentaria, etc. When he does give stimulants, it is only a few ounces of wine, so that his practice bears no comparison with his theory, whilst his imitators make the practice far outrun the theory; instead of using Dr. Bennett's prescription of small doses of antimony or colchicum and a few ounces of wine, they pour in heroic doses of carbonate of ammonia, and brandy or whisky. Well may Sir William Jenner say that inflammatory diseases now-a-days suffer more from the use of stimulants than from the want of them. We believe with Professor Bennett that venesection, a free use of strong purgatives, calomel, tartar emetic, veratrum viride, etc., would be bad treatment in a great many cases of inflammatory disease; whilst we cordially agree with him in the employment of nutrients, as beef tea, milk, raw or soft-boiled eggs, etc., in a vast majority of cases. We do not recommend bleeding, purging, antimony, mercury, veratrum viride and aconite in a disease because it is a case of pneumonitis, pleuritis, peritonitis or encephalitis, but in certain cases and in certain conditions of these diseases we are firmly persuaded that one or more of these antiphlogistic remedies should be administered; and we most emphatically protest against the indiscriminate and immoderate employment of stimulants which characterizes much of the practice of our modern therapeutic reformers. We heartily approve the Hippocratic maxim, that when we are not certain of doing good we should see to it that we do no harm; but whilst believing and acting up to this doctrine we think we are justified, on the one hand, in condemning the heroic stimulating, and, on the other, the passive or expectant system of treatment. When we are called upon to treat an acute inflammation, we cannot reconcile the lavish administration of stimulants as being in accordance with sound scientific principles; and we are equally decided in our opinion that were we to treat such cases on the expectant plan, with a few poultices and a little liquor ammonia acetates, we would be little better than the homœopaths—trifling with the lives of our patients.

"*Medicus naturæ minister, non magister est,*" is a very popular maxim with those who advocate the expectant system of medication, but they carry out the doctrine beyond its legitimate meaning, for they neither control nor assist nature in her usual processes; as ministers of nature, carefully scanning the way she directs, we

should endeavor to aid and assist her in her beneficent and conservative efforts to eliminate, neutralize, modify, circumscribe or subdue disease ; and as nature is sometimes a harsh step-mother, we venture the opinion that we will be occasionally justified in using prompt and active means to control and counteract her course when we distinctly see it tending to destruction and death instead of regeneration and health.

In those cases of acute sthenic pneumonitis in robust subjects, where the pulse is strong and hard, or where the fever heat is over 105° , or where there is threatening cerebral congestion, shall we withhold venesection and thereby hazard the patient's life because many cases of pneumonia have been bled to their hurt? When we see a stout young man struck down with an acute attack of encephalitis, shall we refuse to bleed him because venesection has often been most extravagantly and hurtfully used in cases of apoplexy, ramollissement, or cerebral abscess? I am ever ready to condemn the great use and abuse of mercury under the plea of "torpid liver," "obstructed portal circulation," "surcharge of bile," etc. ; but because a medicine has been indiscriminately used and given in poisonous doses, are we to abandon it altogether? If we can alleviate suffering, and facilitate and hasten the convalescence of a case of pneumonia or pericarditis with a few doses of calomel and opium, are we to ignore the prescription because some cases of these same diseases have been severely salivated by this remedy? In cases of inflammation or fever, where the action of the heart and arteries is rapid and violent, are we to withhold veratrum viride because some cases of the kind have been severely frightened and nauseated with it?

And here I would wish to add my testimony to the safety, efficiency and remedial virtues of this cardiac and arterial sedative. I have used it hundreds of times, and can conscientiously testify that I have never witnessed any serious results from its employment. Even where it is pushed too far and the patient very much nauseated and apparently prostrated with it, a little paregoric and aromatic spirits of ammonia, or some compound spirits of sulphuric ether and compound tincture of cardamon, will soon dispel the alarming symptoms. In the stage of typhus or typhoid fever characterized by boisterous or noisy delirium, wherein most authors recommend alcoholic stimulants, I have seen the most happy effects from the tincture of veratrum and extract of belladonna; three drops of the former and one-quarter of a grain of the latter every three hours until the patient becomes calm and collected. Of course, the veratrum should not be given in the advanced stage of the fever, or when the heart's action is weak. In *post partum* inflammations this remedy is a most valuable antiphlogistic; but in rheumatic, pericardiac or nephritic inflammations the aconite, colchicum or digitalis will be preferable. The antipyretic or

refrigerant plan of treating inflammatory diseases is now attracting considerable attention, and as an assistant therapeutic measure with others, it deserves extensive trial. In pleuritis, pneumonitis, encephalitis, acute rheumatism, and in typhus, typhoid, remittent and puerperal fevers, the ice-bags or wet sheets will be found, in many instances, efficient and valuable aids in the treatment.

The internal use of refrigerant medicines, such as acetate, sulphate and nitrate of potassa, and the bisulphite of soda or magnesia, will prove most reliable remedies as antiphlogistics. In *post partum* inflammations, in surgical fever, and, indeed, in most cases where there is any reason to fear septæmia, these sulphites will prove of essential service as antipyretics, refrigerants and antizymotics. One great objection to their free employment is their unpleasant taste and odor, but by adding to their solution a little compound spirit of lavender, essence of peppermint, cinnamon, or any other essence palatable to the patient, they will generally agree quite well without either purging or nauseating.

In concluding our short and imperfect apology for the antiphlogistic treatment, we would again define our position: first, that there are many lamentable evils, morally and medicinally, consequent on the great rebound from the antiphlogistic to the stimulating treatment of disease; second, we firmly believe that the omission and neglect of the antiphlogistic system is fraught with lasting and often imminent danger to the patient; grave and serious structural lesions accruing in numerous instances which might be obviated by prompt and vigorous abortive measures; third, we recognize in the present fashionable sustaining, or restorative, or stimulating plan of treatment, a close assimilation and affinity with homœopathy, whereby the scientific practice of medicine is brought into disrepute and the unfortunate patients permitted to linger for weeks or months from the effects of an acute disease which might have been arrested, or at least circumscribed and controlled, by efficient remedies, so as to promote a speedy and happy convalescence.

KEEPING FRUIT IN OUR ROOMS.—We should be chary of keeping ripe fruit in our sitting-rooms, and especially beware of laying it about a sick chamber for any length of time. Two continental chemists have shown that from the moment of plucking, fruit is subject to incessant transformation, first absorbing oxygen, then evolving carbonic acid, and the latter in far greater volume than the purer gas is absorbed, so that we have poison given us in the place of pure air, with compound interest. Temperature affects the rate of changes, warmth accelerating it.—*Good Health.*

Removal of a Large Fibro-Cystic Tumor of the Uterus by Gastrotomy. By T. GAILLARD THOMAS, M.D., Professor of Obstetrics and Diseases of Women and Children in the College of Physicians and Surgeons, New York. Recorded by Dr. Matthew D. Mann, House Physician.

E. K., aged twenty-eight, married, living in New Jersey, admitted to the Strangers' Hospital September 24, 1871. Patient has been married ten years, but never been pregnant. Her menses appeared at the usual time, and have always recurred regularly.

A year ago she noticed some swelling in the lower part of her abdomen, originating in the left side. This increased quite slowly during the first six months, and attracted very little attention. Since last spring the growth developed rapidly until its present size. Within a short time she has complained of dyspnœa or orthopnœa, of considerable pain in the back, and of marked debility.

On admission, patient weak but in good spirits; pulse over 100. The abdomen is distended, but very tense; the umbilical depression not effaced. There is absence of resonance all over the front of the abdomen up to a point midway between the umbilicus and the ensiform cartilage, and distinct fluctuation. The tumor resembles in shape and size, the uterus in the eighth month of pregnancy, and is supposed to be an ovarian cyst requiring immediate measures for relief, on account of the extreme tension and the pain which this induces.

Operation.—On the 25th of September, the patient having been etherized, the tumor was removed by Dr. Thomas, in the presence of Drs. Peaslee, Sands, Draper, Markoe, Brown, and a large number of students. An incision of three inches was made in the median line midway between the umbilicus and pelvis down to the sac. A sound was then swept around the tumor, which demonstrated the fact that it was free of attachments. The tumor was then tapped and there flowed away about four quarts of a chocolate-colored fluid, which was found to consist of bloody serum. The wall of the supposed ovarian cyst was found to be so very thick that, after removal of the fluid, difficulty was experienced in withdrawing the sac through the opening. This was, therefore, prolonged to five or six inches and the sac drawn out. To the surprise of the operator, it was found to be a sac with very thick walls growing from the fundus uteri, and disconnected with the ovaries, both of which were healthy. The only explanation which could be given of its development, was that a tumor originally solid, had undergone cystic degeneration or liquefaction in its centre, and thus taken on a cystic character. Hemorrhage had unquestionably occurred within the sac thus formed, for a large amount of blood was found to exist in the fluid removed by tapping.

The walls of this cyst were estimated as about half an inch thick.

The removal of the tumor presented great difficulties, for no pedicle existed. This was accomplished by that species of enucleation recommended by Dr. Miner, of Buffalo, N. Y. An incision having been made through the outer envelope of the tumor, the operator stripped this back on both sides, and by this means enucleated the tumor. From the walls of the enveloping sac thus left, a good deal of hemorrhage occurred, but this was controlled by one or two ligatures, free application of solution of persulphate of iron, and exposure to the atmosphere. The walls of this envelope of the tumor were then ligated by silk and returned to the abdomen. The abdominal wound was closed by silver sutures, except at the lower extremity, into which a small tent was inserted to facilitate drainage and washing out of the peritoneum, which the operator thought would almost assuredly be demanded.

8 P. M.—Patient recovers slowly from the ether; pulse 108; is kept quiet with morphine.

Three months after the operation she presented herself at the hospital, looking fat and healthy. So changed was she in appearance that it was difficult at first to recognize her.

Blood Stains. By HENRY HAACKE. From Caspar's *Gerichtliche Medicin*, Berlin. 1871.

In criminal trials it is often necessary to determine whether certain stains on weapons, furniture, doors, walls, vessels or clothing, resembling blood stains, are really such or not, or if a knife or other instrument, showing no blood stains, could nevertheless have been used in causing a certain wound. It is claimed, perhaps, for the defense, that the accused could not possibly have inflicted the wound with the knife, because it shows no blood stains; or, the existence of blood stains being admitted, it is contended that they were caused by the blood of some animal. The difficulty and importance of the question, and its frequent occurrence in courts of law, led to continued searches after methods to recognize blood; but not until quite recently has it been possible to reach any certainty in differential diagnosis in doubtful cases of blood stains, and the numerous former methods of examination,* all more or

* Compare: Orfila *Traite de Med. leg.* 2nd Ed. II. p. 564. Lassaigne, *Revue Medic.*, August, 1821. Barruele, *Annales d'Hygiene publique*, 1829. Chevalier, in *Poggendorf's Annalen*, 1838, No. 9. Barruel and Lesneur, *Archives de Med.*, 1833, 1-2 Serie. H. Rose, in *Casper's Vierteljahrsschr.*, 1853, iv. p. 295. C. Schmidt, *die Diagnostik verdachtiger Flecke in Criminalfallen* Mittan u. Leip-

less complicated and uncertain, have been supplanted by simpler and more reliable means of recognition. But we must first state what has not been mentioned anywhere else, that *weapons may have been used in causing wounds, although even the closest scrutiny fails to detect the slightest trace of blood on them.*

The following is a case in point:

The body of a young man was found in the *Thiergarten*, near Berlin, with a large cut in the throat. By its side lay the ruptured noose of a small rope; also a knife, without the slightest blood stain. Neither the hands nor any other part of the body showed a trace of blood, though a large quantity of blood which had flowed from the wound, was found on the ground. The linen, and especially the shirt of the deceased, was clean. From these circumstances, and from the fact that the earth in a circuit of nearly two yards around showed evidence of a struggle, the police inferred that a murder had been committed. A closer examination revealed marks of strangulation. The cut separated the *pomum Adami* from the *os hyoides*; it was four inches in length, half an inch in width, had sharp, bloody margins, and had on the right, laid open the trachea; ending on the left, in an acute angle, barely passing through the epidermis. On the left side of the neck there were several superficial semi-lunar abrasions, cicatrized, but without suggillation; another abrasion in the same place, was somewhat deeper, showing a loss of substance of the skin almost as large as a lentil. There were, besides, several slight abrasions both on the lower jaw and on the right side of the neck near the wound. Under the chin, to the right, there was a small spot, denuded from the cuticle, and dried up; without suggillation. The lids of both eyes were very red. A close inspection showed numerous capillary ecchymoses of the size of the point of a pin, so that the skin of the lids presented the appearance of being dotted all over with fine red points. The conjunctivæ were slightly red and showed a few ecchymoses. On the forehead there were numerous capillary ecchymoses of the size of the point of a pin. There

zig, 1848. B. Rittir, über die Ermittlung von Blut., Samen und Excrementenflecken in Criminalfallen Ein gekronte Preisschrift 2. Aufl. Wurzburg, 1854 (mit reicher Literatur), Lassaigue, Annales d'Hygiene publique, 1857.

More recent works: B. Ritter (Geschichtliche Darstellung aller methoden), in Henke's Zeitschrift, 1860, iii. Pfaff, Anleitung zur Vornahme gerichtsarztlicher Blutuntersuchungen 2. Aufl. Plauen, 1863, Zwei Abhandlungen von Erpenbeck und Pfaff in Vierteljahrsschrift, 1862, xxi. 1. u. 2. Heft. Hoppe-Seyler, Handbuch der chemischen Analyse, Berlin, 1865. Sonnenschein, Handbuch der gerichtlichen chemie, 1869. Herapath, on the use of the spectroscope and microspectroscope in the discovery of blood stains and dissolved blood. Brit. Med. Leg. Journal, 1866. Blondlot, de la Constation med. leg. des taches de sang par la formation des cristaux d'hémine, Ann. d'hygiene publique, 1868. Taylor, on the Guaiac process for the detection of blood in med. leg. cases, Guy's Hospital Rep., 1868, xiv. Falk, zur spectroscopie in d. forens. Praxis. Vierteljahrsschrift f. gerichtl. med. 1867, S. 234.

was a blood stain on the dorsal surface of the left thumb, and a similar one on the palm of the left hand. No spermatozoa in the urethra.

On dissection, it appeared that the carotis and vena jugularis were uninjured. There was a small opening in the vena facialis, branching off from the jugularis. The ligam. thyreo-hyoideum had been divided, as also the posterior wall of the pharynx. Around the wound, especially at both ends, appeared infiltrations of blood in the cellular tissue. In the trachea and larynx there was frothy blood, an abundance of which was found in the large and smaller bronchi. The mucous membranes of the trachea and larynx were much congested, and under the mucous membrane of the larynx there were numerous light-red ecchymoses of the size of a lentil. The lungs well expanded; the superior portion of the anterior lobe light greyish-red, anæmic, dry; but the inferior portion of the posterior lobe hyperæmic, of a dark bluish-red color. Incisions produced distinct red spots of the size of a pea on the anterior lobes, several groups of lung-cells being filled with blood. Heart normal, containing a good deal of dark liquid blood, but no coagulated blood. The organs of the abdomen contained but little blood, but the vena cava was full of dark liquid blood.

The knife was a very large one, with a long, rough handle. The blade convex, three inches long, in its greatest width half an inch. The most careful examination by Professors Sonnerschein and Caspar showed no blood stains on the knife. Death had, therefore, ensued not from excessive hemorrhage, but from suffocation caused by the blood from the injured vessel flowing and being breathed into the trachea.

The marks of strangulation had been caused in life, and had preceded the cut in the throat. This would seem to follow from the condition of the eyelids, the ecchymoses of the conjunctivæ, and from the fact that the rope was found near the body. If this be so, the marks of strangulation must be explained by an unsuccessful attempt at suicide. Had another person effected strangulation before the cut, the deceased would have died from suffocation it is true, but not from suffocation in his own blood, as was here the case. A stranger might have applied the rope after death, in order to simulate suicide after the infliction of the cut, but in that case the rope could not have produced the effect described, and it would not have been found *near* the body, but around its neck.

The absence of all traces of resistance is also against the assumption of homicide.

The numerous abrasions on the throat are remarkable; but they must be ascribed in this case (as in many similar cases) to the finger nails of the deceased, who hastily applied and tore off the

rope. The cut in the throat has been inflicted with the left hand. This follows from the presence of blood on the latter, as also from the situation and direction of the wound. The scanty traces of blood on the hand and their absence on the knife are explained by the great size of the knife, the length of the handle and the smallness of the injury of the vessel. Hemorrhage did not commence until both knife and hand had been taken away from the region of the throat. The conclusions arrived at were confirmed by further developments.

EXAMINATION OF BLOOD.

It is, of course, frequently possible to recognize blood on weapons and other objects by simple inspection with the naked eye. I will merely remark here, that blood stains present various shades of color, as dark-brown red, brown and brown-green, olive-light green, light red, and no color at all, according as they have dried rapidly or slowly, by great heat or otherwise, or were washed when still moist or already dry; so that nobody would recognize some of them as blood stains, but rather as mucus, pus, urine or anything else.

A closer inspection alone can decide in doubtful cases.

If the blood is still fresh, it will not be difficult to recognize, by means of the microscope, the red corpuscles of the blood, whose form and nature are supposed to be well known. In the fresh state, it is also possible to measure them and distinguish them, by their diameter, from those of other animals.

According to Schmidt the diameters of blood cells are as follows:

Of man.....	0.0077	Mm.	[0.0074—0.0080].
" dogs.....	0.0070	"	[0.0066—0.0074].
" rabbits.....	0.0064	"	[0.0060—0.0070].
" rats.....	0.0064	"	[0.0060—0.0068].
" hogs.....	0.0062	"	[0.0060—0.0065].
" mice.....	0.0061	"	[0.0058—0.0065].
" oxen.....	0.0058	"	[0.0054—0.0060].
" cats.....	0.0056	"	[0.0053—0.0060].
" horses.....	0.0057	"	[0.0053—0.0060].
" sheep.....	0.0045	"	[0.0040—0.0048].

On an average of twenty measurements the blood cells of the chicken are 0.0076 Mm. in width and 0.0027 Mm. in length. The white blood cells of warm-blooded animals are larger than the red.

It is well known that blood cells swell by the action of water, whilst the abstraction of water and drying up, gives them a ragged appearance. Dried blood cells look somewhat like the pavement of a street which is cracked here and there (Sonnen-schein.)

In the case of such dried up blood the measurements become uncertain.

But even in dried up blood we succeed in producing its elementary forms. For this purpose we treat the blood with absolute alcohol of 95 per cent., let it dry and repeat the experiment several times, and then examine it with the addition of a liquid consisting of equal parts of ether and amyl alcohol (Gwosdew),* a solution of chloride of sodium or even distilled water. Separate blood cells may be obtained by treating the blood with a brush in a watch glass, by drying, scraping and final examination with the addition of a liquid. Still, even blood cells lying together in heaps may often be very well recognized as such.

A second method of examination is that by the spectroscope. For this purpose the blood is sufficiently diluted, which is best done, according to Helwig and Falk, by a solution of iodide of potassium (1:4). If blood is really present, the bands of absorption of the hæmatin will appear between D and E of Fraunhofer's spectrum. Blood is, thirdly, demonstrated with certainty by the production of the crystals of hæmin. Teichman† discovered that by the effect of acetic acid on blood, crystals of hæmin are formed. The further experiments of Erdmann, Buchner, Simon and others, and, later, of Helwig, Gwosdew and Falk have simplified this method to such a degree as to render it, as well as the two methods previously described, available for forensic purposes. The bloody objects are treated in a test tube with glacial acetic acid; a few small grains of chloride of sodium are added, and after boiling the liquid, it is evaporated in a watch glass on a hot stove in the sandbath or in the sun. If liquids are to be examined for blood, it is better to previously evaporate them. Caspar says he examines, generally, according to the still simpler method of Erdmann‡ by adding to the stain, previously removed as completely as possible from the object, besides a small grain of chloride of sodium, glacial acetic acid, in drops, heating cautiously and then allowing it to cool. This examination may well follow that for blood corpuscles according to the method above described. Falk recommends, especially in stains on dark articles of clothing, but also in other cases, to first extract the blood by means of a solution of iodide of potassium and then to examine the solution for hæmin. This method makes the addition of chloride of sodium superfluous. The crystals of hæmin are rhombic or rhomboidal in shape, of different sizes and varying in color, slightly yellow, yellow, yellow-red, blood-red or brown-red. They are frequently grouped in the form of a cross or star. In very small quantities of blood they

* Sitzungsbericht der Kais. Academie d. Wissensch. Bd. liii, 1866.

† Teichman, über die Crystallisation der organ. Bestandtheile des Blutes, in Henle u. Pfeiffer's Zeitschr. f. rationelle med. iii. 3. S. 371.

‡ Journ. f. Pract. Chemie Bd. 85, p. 1.

are often so thin as to have almost no color at all. Good representations are found in Funke's atlas of physiological chemistry. As the crystals may be mistaken for dirt, and, especially, for crystals of purpurate of ammonia, we recommend to examine them with the polariscope. Rollett* has shown that the crystals change their color four times, but so that dark and light alternate, if a *nickel* prisma is placed between the eye and the polarizer and the prisma is turned 360° .

The ozonizing power of hæmatin may, finally, be used for the diagnosis of blood, if hæmatin is added to tincture of guaiac mixed with ether or other matter containing ozone. This is so delicate a test as to be effective even in cases where the blood stains have been washed out until nothing can be distinguished by the naked eye. Its employment is most appropriate when all the circumstances of the case are in favor of assuming an absence of blood.

All these methods are insufficient to distinguish human blood from animal blood.

Caspar says it appears from his own experiments and those of Chevalier, that the so-called discovery of Barruel, to distinguish human blood from animal blood by the odor, must be rejected as unsafe and unfit for forensic purposes. The same may be said of Neumann's method to distinguish the blood of the different animals by the microscopic formations produced through evaporation at a temperature of 10° to 12° R.

Experiments to distinguish menstrual blood from blood caused by wounds, have hitherto been unsuccessful. Nor has it been possible to determine the age of blood stains with much degree of certainty.

CONCLUDING REMARKS.

1. *Weapons.* If the weapons are of shining metals, such as the tools of mechanics, it will be difficult to mistake fresh blood stains, though dried, and examined with the naked eye only, for other stains. Blood stains are of a light red, if only a thin layer of blood adheres to the weapon, and of a dark red if more blood is present. If light, especially sunlight, falls on them, they become irised. They may be distinguished from rust by heating the metal, when the blood comes off in scales, but the rust undergoes no change. In addition, it will be necessary to submit the substance, after scraping it off, to the tests before described.

It is impossible to distinguish, with the naked eye, old dry blood stains from rust stains. They differ in the following particulars: 1. Rust stains are lighter and duller; blood stains darker and

* Rollett, über den Pleochroismus der Hamin crystalle nebst einer kurzen anleitung zur Untersuchung desselben. Wiener Med. Wochenschr., 1862, No. 23.

more brilliant (irisated). 2. Rust stains adhere better and remain on heating; blood stains come off in scales. 3. Rust dissolves easily in muriatic acid; blood stains do not. 4. Detached blood stains may be melted with sodium, and the product may, on cooling, be examined for cyanogen. 5. A blood stain which has become insoluble in water, from oxide of iron (forming rust), may be dissolved in potassa, and the solution may then be tested. It is necessary, however, to remember that iron rust generally contains ammonia.

2. *Fresh blood stains on furniture, doors, wall paper, wooden handles, boots, etc.*, of a dark color, that cannot be distinguished in daylight, become visible by the use of artificial light, as for instance that of a wax candle (Ollivier and Pillon). The stains must be scraped off from these articles and examined as before directed.

3. *Blood stains on clothing or linen* may either be scraped off or extracted, or they may be examined in their original state, according to the methods described. The chemical methods recommended by Rose,* Morin,† Wiehr,‡ Bryk,§ and others, are less certain. Rust stains on linen cannot be mistaken for blood stains, even when washed. Only fresh stains of acetate or sesqui-oxide of iron may be mistaken for fresh blood stains, but they retain their red color, whilst blood stains soon become darker or brownish-red. All other preparations of iron, and also the one just named, when washed, become yellow by being changed into hydrated sesquioxide of iron. These stains of iron, when washed, retain much more definite outlines than blood stains; and when the outlines of iron stains disappear, they represent only different shades of yellow, whilst blood shows reddish or greenish shades. They differ also in the following particulars: 1. An iron stain, boiled with diluted muriatic acid, forms, immediately, a yellowish solution; but a blood stain undergoes no change. 2. An iron stain turns dark blue (Prussian blue) on being acidulated by a few drops of diluted muriatic acid, with the addition of ferro-cyanide of potassium; a blood stain does not. 3. An iron stain, by diluted muriatic acid, in a moderate heat, may be obliterated until there is no reaction even to ferro-cyanide of potassium nor to the resin of guaiacum; whilst a blood stain, even when washed until its color disappears, shows this reaction, on being treated in the same way with muriatic acid. So, too, pus, urine and fæces do not show this reaction with the resin of guaiacum.—*The Clinic*.

* Caspar, *Vierteljahrsschrift*, IV, S. 255.

† Archiv. der Pharmacie, Hft 2, '64, S. 192.

‡ Ib.

§ Wien, med. Wochenschrift, 1858, S. 789, and the former editions of this work.

Editors' Book Table.

[NOTE.—All works reviewed in the columns of the CHICAGO MEDICAL JOURNAL may be found in the extensive stock of W. B. KEEN, COOKE & CO., whose catalogue of Medical Books will be sent to any address upon request.]

BOOKS RECEIVED.

Aural Catarrh and Curable Deafness. By PETER ALLEN, M.D., Aural Surgeon to St. Mary's Hospital, etc., etc. For sale by W. B. Keen, Cooke & Co., 408 Wabash Ave., Chicago.

The student of medicine, as well as the practitioner, will find benefit in the perusal of this little work. The anatomy and physiology of the structures of the middle ear, and the symptoms and pathology of its diseases, are plainly discussed.

There is scarcely any class of diseases of which good practitioners are so ignorant, as of this. Any work which presents any portion of aural science in a clear light, is a valuable addition to our literature. There is the less excuse for this ignorance, since aural literature is comparatively limited in extent.

This work, although nominally devoted to a very prevalent disease, aural catarrh—catarrhal deafness—contains many valuable hints regarding aural science generally. We most heartily commend the work to our readers.

We would, however, be more pleased, if, in the author's report of cases, there were less apparent attempts to lead the reader to regard his skill as superior to that of other specialists.

A System of Surgery: Pathological, Diagnostic, Therapeutic and Operative. By SAMUEL D. GROSS, M.D., LL.D., D.C.L. Oxon., Professor of Surgery in the Jefferson Medical College of Philadelphia, etc., etc. Illustrated by upwards of Fourteen Hundred Engravings. Fifth Edition, Greatly Enlarged and Thoroughly Revised. In Two Volumes. Philadelphia: Henry C. Lea. 1872. Pp. 1098 and 1170.

The present edition of this magnificent monument of surgical erudition, experience and skill, is brought out in the highest style of that typographical and general excellence which distinguish the eminent publishing house from which it emanates. In its general features it is too well known to need introduction to our

readers. Beyond the most of treatises, it discusses the great Principles of Surgery, without an exact and adequate knowledge of which the mere operator sinks to the level of a mere mechanical artisan. Large attention is also paid to the discrimination of diseases, with an elaborate chapter on general diagnosis.

The work, as a whole, is the embodiment of the matured knowledge and experience of a ripe age, after a long life of earnest study, acute observation, and vast opportunities. Over five years have been devoted to revising, and, indeed, re-writing the work. Most heartily do we commend it to the medical public.

A Year-Book of Therapeutics, Pharmacy and Allied Sciences. Edited by HORATIO C. WOOD, Jr., M.D., Professor of Medical Botany, University of Pennsylvania; Physician and Lecturer on Clinical Medicine to the Philadelphia Hospital, etc., etc. New York: William Wood & Company. 1872. 8 vo. pp. 360.

This is given in five parts, including Therapeutics, Materia Medica, Toxicology, Prescriptions and Formula, and General Receipts. It is one of the most convenient and perfect of the annual compendiums we have had the privilege of looking over.

PAMPHLETS.

Archives of Ophthalmology and Otology. Edited and published simultaneously in English and German, by Prof. H. KNAPP, M.D., in New York, and Prof. S. MOOS, M.D., in Heidelberg. Volume II, No. 2. New York: William Wood & Co. 8 vo. Pp. 316. With numerous plain and colored illustrations.

Modern Medicine: Its Status in Modern Society. By HOMER O. HITCHCOCK, A.M., M.D., Kalamazoo, Michigan. The President's Address before the State Medical Society. Delivered at Grand Rapids, Michigan, June 12th, 1872.

Season of 1872.—Warm Springs of Bath County, Virginia. Pamphlets to be had of Coleman & Rogers, Baltimore, Md.; Purcell, Ladd & Co., Richmond, Va.; or Eubank, Reynolds & Co., at the Springs.

Annual Address, Delivered before the Medical Association of Central New York, June 18th, 1872, by the President, B. L. HOVEY, M.D., of Rochester; and An Essay on Asiatic Cholera, by W. S. ELY, M.D., of Rochester.

Professional Ethics.—*The Annual Address before the Minnesota State Medical Society.* By FRANKLIN STAPLES, M.D., President of the Society. Reprinted from the Transactions of the Society, 1872.

New Remedies. A Quarterly Retrospect of Therapeutics, Pharmacy and Allied Subjects. Edited by HORATIO C. WOOD, Jr., M.D., Prof., etc. New York: William Wood & Co., Publishers. July, 1872. Vol. 2, No. 1. \$2 per annum.

The Physician's Monitor for 1872. A Concise Repertory of Useful Information for the Medical Practitioner; containing Recent Discoveries in the Medical World, and New Remedies in Therapeutics and Allied Subjects; Original, and Selected from the most Eminent Authorities, etc., etc. Vol. 1, No. 2. W. A. Townshend, Publisher and Bookseller, 177 Broadway, New York. Price, 25 cents each.

Editorial.

Nostrum.

A medicine, the ingredients of which are kept secret for the purpose of restricting the profits of sale to the inventor or proprietor. (Webster.)

Literally *our own*; applied to quack medicines retained for profit in the hands of the inventor or discoverer, or of his assignee (Brande.)

There is scarcely a druggist in this city who has not a private memorandum book filled with recipes belonging properly to the above category; and a file loaded with prescriptions for Dr. A.'s pills, Dr. B.'s cough syrup, Dr. C.'s cholera mixture, and so on, through the whole alphabet of names and catalogue of nostrums.

Many of these nostrum proprietors, too, earnestly, and apparently in good faith, decry the use, by their ignorant patients, of patent medicines, so-called, upon the principle that "two of a trade never agree." And yet, in what do their practices differ from those of Hembold, Radway & Co., except in being conducted upon a smaller scale with less profit?

The principle involved is the same in both cases. The physician, or, more properly speaking, the "medicine man," who directs a dozen patients indiscriminately to go to Blank's drug store and get some of "my mixture" or whatever else it may happen to be, without taking the trouble to make an especial diagnosis in each particular case (if he perchance be able to make one), is as much a quack as the veriest charlatan whose name disgraces the local columns of the daily papers.

Adapt the remedy to the disease, not the disease to the remedy, as in this procrustean practice. H.

Chicago Relief Fund.

The² Junior Editor of the JOURNAL, as Secretary of the late Medical Relief Committee, takes pleasure in acknowledging the receipt of one hundred and thirty-four dollars and fifty-one cents from physicians of New York, through Dr. S. T. Hubbard, Treasurer, and also of fifteen dollars from physicians of Lansingburgh, N. Y., through Dr. Geo. H. Hubbard.

As this money was received after the accounts of the Chicago Relief Committee had been finally audited and the committee discharged, the late secretary having no authority to disburse the funds, wrote to the donors offering to return the checks or to disburse the money at his own discretion by their authority. The latter alternative having been approved by the donors, and the necessary authority having been forwarded, the Junior Editor, with the co-operation of Dr. Ernst Schmidt, one of the members of the late committee, has disbursed one hundred dollars for the purposes and objects designated in the bequest.

There is now remaining in the hands of the Junior Editor the sum of forty-nine dollars and fifty-one cents, to be applied to the relief of any (of those designated by the donors) who may stand in need of it.

By to-day's mail we are informed by Dr. S. T. Hubbard, late treasurer of the New York Executive Committee, that a list of the names of the contributors to the Chicago Medical Relief Fund, in New York, will be forwarded. When this is received we shall take much pleasure in publishing it in the JOURNAL, as a permanent record, worthy to stand for all time, of the noble deeds of noble [men. We would like to print it in letters of gold, or

engrave it upon "perennial brass," if, in this, it could be more deeply impressed than it is, we are sure, in the grateful hearts of the medical men of Chicago, both of those who suffered and those who sympathized.

We subjoin the list of names above referred to :

Drs. Acheson, J.; Agnew, C. R.; Althoff, Herman; Allen, Charles M.; Angell, E. C.; Anderson, James; Assenheimer, August; Aub, Joseph.

Drs. Barker, Fordyce; Bahan, T. S.; Ball, A. Brayton; Balser, William; Banks, J. L.; Baetsendorf, H.; Beldon, E. B.; Bernachi, Charles; Beekman, John; Billington, C. E.; Bishop, John; Blakeman, W. N.; Blake; Blume, Samuel; Blumenthal, Mark; Bozeman, N.; Bowden, J. W.; Bradley, E.; Bopp, Ludwig; Brennan, J. W.; Budden, C. K.; Brown, J. L.; Burke, J.; Burrall, F. A.; Buchanan, Alexander; Budd, Charles A.

Drs. Castle, F. A.; Cash; Cash; Cash; Cash; Cash, F. C. F.; Cash; Cash; Cash, J. C. S.; Cash, J. J. D.; Cann, D. C.; Cash; Cash; Cash; Ceccanni, G.; Chamberlain, W. M.; Cheeseman, T. M.; Church, A. S.; Chaveau, J. F.; Clarke, P. J.; Clark, A.; Conway, Wm. A.; Colby, J. L.; Cook, D.; Crampton, Henry C.; Curtis, E. & J.; Caswell, Hazard & Co., (Apoth.)

Drs. Dalton, J. C.; Davis, H. H.; Detmold, William; Delafield, Edward; Dessau, S. Henry; Derby, R. H.; Dew, J. H.; Dieffenbach, K. G. S.; Downs, Henry S.; Douglass, J. H.; Draper, Wm. C.; Du Bois, M. B.; Du Bois, A.; Du Bois, H. K.; Dunster, E. S.

Drs. Eager, Wm. B.; Emmett, Thomas Addis; Ellis, T. C.; Eno, H. C.

Drs. Fairbrother, C. M.; Ferber, Amandus; Feuchtwanger, L.; Finlay, Edward S.; Fisher, T. L.; Flint, Austin, Senior; Foster, Joel; Foscato; Fowler, Edmund; Ford & Ridet; Frankel, J.; Frankenstein; Friend; Friend of Dr. J. Foster Jenkins; Frothingham, Wm.; Fuller, R. M.

Drs. Gardner, A. K.; Gay, H. S.; Geillahim, Wm.; Gabe, L. M.; Guleke, H.; Glasser, Joseph; Gomez, H.; Goldschmidt, L.; Griswold, Samuel; Gregory, H. H.; Gunn, A. N.

Drs. Hamilton, Frank; Hammond, W. A.; Harrison, A. J.; Hall, E.; Hadden, James; Hall, J. J.; Hahn, H.; Harrison, G. T.; Hart, Le Baron; Hall, Samuel; Hahn, S.; Herzog, Max; Herzberg, E.; Hirsch, S.; Hogan; Holgate, T. H.; Howard, Benj.; Hubbard, S. T.; Humphreys, George H.; Hue, Jude; Hunter, A. S.; Hunter, Wm. C.; House Staff, Strangers' Hospital; Hilton, H. R., U. S. A.

Infants' Hospital.

Drs. Janvrin, J. E.; Jacobi, A.; Jackson, W. H.; Johnson, A.; Judson, A. B.; Jay, A. S.; Johnson, W. H.; Janes, E. H.; Janeway, E. G.

Drs. Kammerer, J.; Keyes, E. L.; Kent; Kepler, A.; Keeney, B. M.; Kerrigan, J. A.

Drs. Kellogg, John M.; Kellogg, T. H.; Kissam, J. B.; Klapper; Knight, James; Knapp, H.; Kremer, Charles; Kost, H.; Krog, Carl; Koekler, August; Krackowizer, Ernst; Kessler, A.

Drs. Lang, Raphael; Langmain, G.; Lambert; Leale, C. A.; Learning, J. R.; Levings, N. B.; Little, J. L.; Loomis, A. L.; Loving, Edward; Lusk, Wm. T.

Drs. McClain, H.; McClelland, J.; McMillan, Charles H.; McNeily, R.; McQuestion, C. B.; McLarry, A. W.; Mattson, N.; Magie, David; Maxwell, E. R.; Mason, R. Q.; Maclay, A. W.; Medical Class, College of Physicians and Surgeons; Messenger, D.; Meyer, G. H.; Miller, Charles; Miller, D. B.; Miner, J. C.; Moses, M. J.; Moloney, A. A.; Morris, S. F.; Molin, Charles; Morrell, J. S.; Muller, R.; Mourraille, G.; Members Medical Journal Office.

Drs. Newman, R.; Neil, J.; Neftel, W. B.; Noeggerath, Emil; Nordeman, F.; Nott, J. C.; Noyes, H. D.

Drs. O'Dwyer, J.; O'Meagher, W.; O'Neill, D. E.; Obbarius, Herman; Orton, S. H.; Otis, F. R.

Drs. Parker, Willard; Parson, R. L.; Packard, C. W.; Peaslee, E. R.; Peters, J. C.; Piffard, H. G.; Plimer; Place, Nelson, Jr.; Post, A. C.; Pooler, H. A.; Purdy, A. E. M.; Purdy, A. S.; Pullin, E. R.

Drs. Raphael, B. J.; Railton, H. J.; Reynolds, James B.; Ripley, I. H.; Rogers, Stephen; Robinson, G. W.; Roof, S. W.; Russell, Charles P.; Robinson, J.

Drs. Sass, Luis F.; Sands, H. B.; Sayre, L. A.; Sabine, G. A.; Salvatore, Caro; Sewall, J. G.; Seguin, E. C.; Schwedler, E. F.; Sims, J. Marion; Simroch, Francis; Shradly, John F.; Shift, Henry; Smith, O. G.; Smith, Governor M.; Smith, James O.; Smith, J. L.; Smith, A. H.; Stanley, C. G.; Sturgis, F. R.; Sundry, from Dr. Taylor; Stoddart, M.; Stackelberg, J.; Students Bellevue Hospital Medical College; Stein, S.; Steiger, Joseph; Stoddart, Alex. (layman); Sweeney, James; Swan, John O.; Satterlee; Sabine, Thomas F.; Stein, Charles.

Drs. Taylor, R. W.; Teats, S.; Teller, S.; Thebaud, J. S.; Thomas, T. G.; Thomson, B. S.; Thomson, Wm. H.; Toal, David D.; Tucker, C. N.; Tully, Marcus C.

Dr. Underhill, Alfred.

Drs. Van Antwerp, A.; Van Buren, Peter; Van Winkle, E. H.; Varley, C. D.; Vedder, Maus R.

Drs. Walton, L. P.; Watson, Wm. S.; Warner, J. W.; Ward, C. S.; Walton, C. J.; Warner, E. B.; Walser, Henry; Weir, R. F.; Weiner, J.; Weisman, F. H.; Wilson, J. H.; Williams, M. H.; Wheelock, G. G.; Wood, E. G.; Woolfarth, A.; Wood, J. R.; Wood, C. S.; W. S. D.; W. H. D.; Wuber, L. Yorkville Medical Association.

Contribution from Naval Medical Officers, Brooklyn Navy Yard, through Dr. Geo. Peck, U. S. N.

Drs. Chase, C.; Henderson, A. A.; Jackson, S.; Keshneu, E.; Kidder, J. H.; Mackie, B. S.; Oberly, A. S.; Peck, George; Pilcher, L. S.; Schofield, W. K.; Smith, T. L.; White, C. S.; Willard, L. T.

Surgical and other instruments were also sent to Chicago through Dr. Hamilton, Chairman of the Executive Committee, viz. :

Mr. Stohlman sent several.

Dr. E. G. Rawson, a case of amputating instruments ; also a case of trephining instruments.

Messrs. Shephard & Dudley, a case of instruments to Woman's State Hospital.*

Dr. Eager, Gouley's instrument for stricture.*

Messrs. Otto & Reynders, sent an assortment of uterine instruments to Dr. A. B. Jackson, for use of the Woman's State Hospital.*

Otto & Reynders sent to the Christ Church Dispensary, instruments ; also sundries given by Mr. Plankter.*

Messrs. Darrow & Co. sent one electro-magnetic machine ; also one to Louis Drescher ; also a case of pocket instruments.†

Darrow & Co. sent one electro-magnetic machine ; one also presented by Mr. Louis Drescher.†

Darrow & Co. also contributed a case of pocket instruments.†

Dr. Frank Hamilton contributed instruments.

The sum total in money sent for the relief of medical men of Chicago through the Executive Committee, Dr. Frank Hamilton, Chairman, amounts to five thousand nine hundred and thirty-four dollars and fifty-one cents (\$5,934.51.)

The committee reported at the time of its discharge the receipt of five thousand eight hundred dollars (\$5,800) from the New York Executive Committee, through Dr. S. T. Hubbard, Treasurer, and Dr. Frank Hamilton, Chairman.

This amount, together with one hundred and thirty-four dollars and fifty-one cts. received from the same source by the late secretary of the committee since its discharge, makes a total aggregate of \$5,934.51, forwarded by the New York Executive Committee and received by the Chicago Relief Committee. Of this amount, \$34.51 still remain in the hands of the late Secretary of the Relief Committee.

In addition to this balance there has been received from

* These instruments were not received by the committee.

† Statement duplicated probably by clerical error.

Lansingburgh, N. Y., through Dr. George H. Hubbard, fifteen dollars.

Making an unexpended balance of forty-nine dollars and fifty-one cents, to be used for the benefit of any who may be in need, of those entitled to this aid. H.

Medical Evidence.

What now is more needed than anything else, is a treatise on Spinal Affections. There is not now a book, essay or tractate, on the subject, which is more than fragmentary. Erichsen's Treatise on Railway Spine, etc., is the merest twaddle. There is no work on the subject which rises above the scorn of the most pitiful attorney. Who will give us something worthy the profession? not as an advocate, not as a defender. Who will separate for us malingering, hysteria, and the functional disorders of *habit*, from *bona fide* organic lesions. As it is now, the medical evidence in such cases is a roaring farce, and a byword of reproach.

Foot.

A Nervous Atmosphere.

A theory has lately been propounded by Dr. B. W. Richardson, of London, which is in some sense a return to the old view of a nervous fluid, and in some sense also is an extension to the nervous system of the physical idea of communications of motion by molecular disturbance. He supposes that the blood, as it circulates through the vessels, yields a diffusible vapor or atmosphere which charges the nervous system, surrounding the molecules of nervous matter and pervading the whole nervous organism. He attempts to formulate the physical qualities of this vapor; it is probably an organic vapor containing carbon, hydrogen, and nitrogen; it is insoluble in blood, it is condensable by cold, diffusible by heat; it possesses conducting power, and as a physical substance is susceptible of variations of pressure; it connects the nervous system in all its parts together; it is the medium of communication during life between the outer and the inner existence; by the organs of the senses the impressions and motions derived

from the outer world are vibrated into or through the nervous atmosphere to the brain; in the living and healthy animal the nervous ether, if we may so designate it, is in correct tension, in the feeble it is diminished, in the dead it is absent or inactive; in the waking times of the living it is most active; it may be used up faster than it is produced during exercise; it is renewed during sleep.

On the supposition of the existence of a nervous ether or atmosphere, the author accounts for various phenomena. It is assumed that vapors of chloroform or alcohol, for example, taken into the blood and carried to the nervous system, become diffused through the nervous atmosphere. "The foreign vapor that has been introduced benumbs: in other words, it interferes with the physical conduction of impressions through what should be the cloudless atmosphere between the outer and inner existence." The rapid action of certain poisons, and the diffusion of the products of decomposition generated within the body itself, in disease, and the sudden collapse of nervous action which is often seen, are similarly accounted for by the author of the theory.

The Modern Idea of Disease.

In an address before the Clinical Society of London, Sir William Gull remarks as follows on the modern idea of the nature of disease:

Respecting the object we work for,—this living organism of ours,—one great advance has of late been made. We are acquiring a physiological notion of disease. Disease is no entity; it is but a modification of health,—a perverted physiological process; and this must at all times be insisted upon. Were it not that we fear death and dislike pain, we should not look upon disease as anything abnormal in the life-process, but to be as part and parcel of it. Few would now venture on a definition of disease; for in reality it is but the course of nature in a living thing which is not health. In health, the balance of function is even; incline it to either side, and there is disease. That being so, just as the life-process constitutes an individual and puts him apart from his fellows, so must any alteration in it be individual, and not general. But to the ignorant, disease is an entity,—an evil spirit which attacks us and seizes us. Hence arises the word "seizure," which, though in a somewhat different way, we still use, but with a protest. To the charlatan, disease is a set of symptoms to be attacked by a variety of drugs,—a drug for each symptom. To us, disease is a life-process of a perverted kind.

Many states are not now called diseases which used to be, and there are still some to be expunged. Some people are always ailing. Some have feeble stability, and to them it is as natural to be ill as it is to others to be well; but this is not disease. So, too,

aged persons get ill; but this is not disease,—in reality it is natural change simulating disease, and when we try to cure such, we use all the farrago of the chemist's shop to prevent the sun setting. So syphilis at last ceases in the system to be syphilis, and becomes an early decay.

It is curious to consider the various morbid agents at work within our bodies, the lines in which they work, and their seats of action. These as yet have been but little studied, and deserve attention. Thus, it is very doubtful if scarlatina begins in the blood, as we should all be apt to say, rather than in any other tissue or fluid. Let it be our object to find out where all these begin within the body, and how they enter the body.

In future, I hope, comparative pathology, which is just beginning to be studied, will teach us much; for in our bodies we men have many organs which are of little or no use to us, and are only relics of a former state of being. What, for instance, is the comparative anatomy of the tonsils? Were I to make a man, I do not think I would put tonsils in him. Yet these, and such like organs, in accordance with the general law, are more prone to disease than are the others which are of real use in the system. I remember the case of a man who had a permanent vitelline duct. He had been out on a cold day, and the motion of the intestines twisted them in a mass round his persistent duct, and he died. I made a preparation of the duct, and wrote under it, "*Cui vitam atque mortem dedit diverticulum.*" Every part of the body is alive, and has its own individual life and pathology, whether it be immediately required or not; only, if not required, it is more prone to disease than if it were. I could, for instance, suppose a fœtus of four months going to the doctor and saying, "I am going all wrong; my Wolffian bodies are disappearing, and kidneys are coming in their stead." Yet that is as much a condition of disease as some of those conditions of which I speak.

Treatment of Carbuncles.

Carbuncles, according to the *Georgia Medical Companion*, are most safely, humanely, and more regularly treated as follows :

Introduce the canula of a hypodermic syringe into the centre of the tumor, draw out the piston, and with it will come pus, if any be present. The syringe is to be removed from the canula and emptied, the canula left in, and the syringe replaced to the canula again, and the piston withdrawn as before, as long as pus follows. When all the pus is out, withdraw the canula and apply on the tumor, externally, with a brush, the following:

R.	Collodion,	-	-	-	-	-	-	dr. i.
	Castor Oil,	-	-	-	-	-	-	gtts. xx.
	Carbolic Acid,	-	-	-	-	-	-	grs. v.
	Tannin,	-	-	-	-	-	-	scr. i.

Mix. Several applications are to be made, one after the other, so that a good outer covering is obtained at once. If the patient is weak, give him tr. iron, 20 drops, every four hours; also,

R. Fl. Ext. Peruvian Bark,	-	-	-	-	gtts. xx.
Spts. Ammon. Arom,	-	-	-	-	grs. xx.
Infusion Gentian,	-	-	-	-	oz. i.

Mix. Repeat as often as deemed advisable.

Feeding by the Rectum.

The feeding of patients by nutritive enemata in cases of stricture of the œsophagus or pylorus, or whenever the upper part of the digestive tube must be relieved of its functions, has hitherto been anything but a satisfactory proceeding. The ordinary fluid food which is generally used for that purpose is either not retained long enough in the rectum, or cannot be digested there for want of a digestive ferment. Even the proposal of Meissner, to use an artificially prepared meat-peptone, has not always been found practicable, and the long time necessary for its preparation makes it quite unsuitable for daily practice. A decided step in advance has recently been made by Dr. W. O. Leube of Erlangen (*Deutsches Archiv für Klin. Medic.*, vol. x.) Starting from the idea that it would be best to let the digestive changes which must necessarily precede absorption go on in the rectum itself, with its equable temperature, he devised a mixture of food and digestive ferment which, he found, is easily retained in the rectum from twelve to thirty-six hours. The digestive ferment is the fresh pancreas of the ox or pig, which, finely minced, he mixed with scraped meat, rubbing them well together with a little warm water, so that the mass may be easily injected. The most suitable proportion is one part of pancreas to three of meat. Fat may be added, but its quantity ought not to exceed one-sixth of that of the meat. Before this food is injected, the rectum ought to be washed out with water. Dr. Leube mentions that the first enemata sometimes apparently remain undigested, but that this must not prevent their being continued. Generally the fæces resulting when this food has been retained sufficiently long, have the character of ordinary faecal matter. By a series of experiments, Dr. Leube has proved that by this method of feeding *per rectum* a considerable quantity of nitrogen is taken up into the system. In a dog, which for several days had been deprived of nitrogenous food, and whose system, therefore, was in a state of nitrogen-hunger, an increase in the nitrogen-elimination by the kidneys took place when these nutritive enemata were given; and, on the other hand, in several experiments on a dog, and likewise on a healthy young man whose system was in a state of satiation with regard to nitrogen, the

quantity of nitrogen excreted through the kidneys was not materially diminished when most of the nitrogenous food was introduced by the rectum instead of the stomach. A chemical examination of the feces remaining when the food had been retained long enough, showed that almost the entire quantity of nitrogen contained in the food had disappeared. The same was found with regard to fat; and in a dog that was killed on the second day of the experiment, the epithelial cells of the mucous membrane of the colon were found filled with fat globules. Dr. Leube also relates three cases of patients in whom this method of feeding had been used, and has completely answered the expectations which had been formed from his experiments. Of particular interest is the last case, in which, in consequence of tincture of iodine having been accidentally swallowed, no food whatever could be taken by the stomach, and the feeding by the rectum had to be continued for more than four weeks. In all three cases the general condition of the patients was much improved, although the nature of the cases precluded any but temporary benefit, two of the patients suffering from carcinoma.—*British Medical Journal*.

Cold Alcoholic Test for Albumen.

Dr. C. R. Drysdale reports from the Metropolitan Free Hospital, that he has tried the cold alcohol test for albumen, recommended by Dr. Betz (*Memorabilien*, 1872,) and that it has proved trustworthy in the cases tried by him. Dr. Betz remarks that boiling the urine is not a sufficient plan when examinations are made in private practice, because albumen is not always thrown down by boiling. Also nitric acid is not certain in all cases. He mentions that a trustworthy and very easily obtained reagent is ordinary spirit as bought in shops. A portion of the urine is poured into a glass, and over it about an equal quantity of spirit, without allowing the two liquids to mingle. When albumen is present, the alcohol has a milky haze at the junction, and occasionally there are small nipples of albumen seen in the alcohol when the urine is very full of it. This process is so simple that it can always be made use of. According to Dr. Betz, this test will frequently show albumen when we are not inclined to think it exists, on account of the absence of œdema, heaviness of the body (which is seen in children,) foaming of the urine on micturition, scarlatina or pneumonia. Dr. Drysdale has found the reaction in four cases of chronic albuminuria now under his care at the hospital.—*Medical Press and Circular*.

Electrolysis in Ovarian Tumors.

Dr. F. Fieber reports (*Wien Med. Presse*) the following: "A seamstress, aged 32 years, had a tumor of the size of a man's

head, slightly painful on pressure, hard, nodulated, extending from half an inch below the umbilicus down to within an inch above the symphysis; its breadth was six inches. Diagnosis: ovarian cyst of the right side.

"June 6th, 1870, a large gold needle with a copper pole, connecting with Daniel's battery of twenty elements, was inserted one and a half inches deep into the swelling, one and a half inches below and to the right of the umbilicus, the chain was then closed to the left of the umbilicus. While the needle was inserted, the patient experienced a sensation of severe burning, which, however, soon disappeared; after seven minutes the needle was withdrawn; reaction slight.

"Up to November 30th, electrolysis was repeated eleven times, subsequent inflammatory symptoms but rarely requiring poultices and small doses of morphine. The needle was inserted into different places. Till the end of November, the swelling diminished but little; afterward it decreased rapidly. March 10th, 1871, the cyst was reduced to the size of a hen's egg."

Dr. F. urgently recommends in every case the employment of electrolysis before undertaking ovariectomy.—*Medical Archives*.

Michel's Process for Removing External Tumors.—By Dr. WILLIAM A. BELL.

A little pamphlet gives an interesting account of the mode of operation for the removal of tumors practiced by a French charlatan, for a knowledge of which Dr. Bell paid no less a sum than 25,000 francs, and which, having now obtained complete information, he has very properly and liberally made public. The preparation used in all cases where the tumor can with safety be reached externally is made in the following way: Asbestos, as soft and free from grit as possible, is reduced by rubbing between the hands to the finest possible fleecy powder; it is then mixed thoroughly with three times its own weight of strong sulphuric acid ($\text{S O}_3 \text{ H O}$). A mass is thus formed which may be easily worked with a silver or gold spatula into any size or shape, corresponding to the tumor to be destroyed. Any malignant growth of the breast which is detached and solitary, with the subaxillary glands unaffected, is suitable for treatment, whether open or not makes no difference. In the application of the caustic the adjoining healthy parts of the skin are carefully protected by applying a zone of collodion and pads of linen, and the patient is so placed that the surface of the tumor is perfectly level. The saturated acid asbestos is then laid on the surface to the thickness of half an inch for a tumor the size of a hen's egg. Rapid destruction of the tissues follows, with, after the first half-hour or so, but little pain. An oozing of clear watery fluid appears, which must be carefully sopped up. After twelve or fourteen hours' action, the first application is to be removed, and a new portion of smaller size adapted to the sore. After this

has been applied for twelve hours, the operation is complete, and the healing of the deep excavation alone requires to be attended to, for the details of which we must refer our readers to the pamphlet. Dr. Bell does not pretend to say that this mode of operation will effect a permanent cure of cancerous cases, but he thinks that the plan presents various and considerable advantages over extirpation by the knife, as in producing much less shock to the system, in removing the tumor alone with but little of the surrounding breast, and in postponing, in malignant cases, for a longer period the recurrence of the disease.—*Practitioner*.

Ears versus Brains.

Prof. Lacock says that the form of the ear depends upon two fundamental elements, namely: First, the cartilage, with its muscles; secondly, the helix and lobule. In man, the cartilage of the perfect ear is comprised within an ellipse or ellipsoid proportionate to the head, and to this is attached a geometrically formed helix and a pendent ellipsoid lobule. In proportion as these parts are defective, or as the ear is monstrous, triangular, square, or of an irregular form, it indicates a tendency to cerebral degeneration or defect. Monstrous ears, with defective helix or lobules, are very common in idiots. Men of high intellectual attainments, great capacity for mental labor, and great force of character, have a full perfectly ovoid ear, and the helix well developed, the lobule plump, pendent and unattached to the cheek at its anterior margin. These characteristics are seen in all the portraits of great men which Lavater gives, and are easily observed in living celebrities. In a perfect ear the ovoid lobule hangs from the cartilage with a rounded lower margin, which at its inner border is not confluent with the face. If this inner margin be adherent to the cheek, and at the same time the lobule be only a segment of an ellipse, there is more or less tendency to imperfect cerebral action.—*Lond. Med. Times and Gazette*.—*Detroit Review*.

Prize Essays.

The Committee of the American Medical Editors' Association, appointed on a proper subject for prize essays, have recommended the following for the prize to be awarded in May, 1873:

"The Pathology and Treatment of Diseases of the Ovaries."

And for the prize to be awarded in May, 1874, the following:

"At what stages of Pulmonary Tuberculosis is a change of climate desirable; what are the principles which should govern us in choosing the kind of change to be made; and the best localities in North America to send patients of this class?"

The prize offered is \$100, and competition is open to all medical editors.—*Boston M. and S. Journal*.

District Medical Society—Organization Completed.

Pursuant to adjournment, the physicians of Central Illinois met in Farmer City, July 2nd, 1872, to complete the organization of "The Central Illinois Medical Society." Meeting called to order by Dr. C. T. Orner, chairman.

Reports of committees being the first thing in order, the committee on Constitution and By-Laws, through their chairman, Dr. Jno. Wright, submitted a copy, which, after one or two amendments, was unanimously adopted.

Committee on Nominations, through their chairman, Dr. Hill, reported :

For President—Dr. John Wright, Clinton.

For 1st Vice President—Dr. M. S. Brown, Urbana.

For 2nd Vice President—Dr. C. T. Orner, Saybrook.

For Corresponding Secretary—Dr. R. G. Laughlin, Bloomington.

For Recording Secretary—Dr. W. G. Cochran, Farmer City.

For Treasurer—Dr. H. C. Howard, Champaign.

For Censors—Dr. W. Hill, Bloomington ; Dr. T. D. Fisher, LeRoy ; Dr. J. T. Pearman, Champaign ; Dr. C. Goodbrake, Clinton ; Dr. J. S. Miller, Farmer City.

Report adopted.

Drs. Huddleston and Hill were appointed to conduct the President to his chair, when, by a few well-timed remarks, he thanked the society for the honor conferred upon him.

A motion that when we adjourn we adjourn to meet in Bloomington was carried unanimously.

Dr. R. G. Laughlin introduced the following resolution, which was adopted :

Resolved, That standing committees be appointed by the President on the subjects of Surgery, Practical Medicine, and Obstetrics, and that other standing committees be appointed at the option of the society.

In accordance therewith the following committees were appointed :

On Surgery—Dr. C. Goodbrake, Clinton ; Dr. W. Hill, Bloomington ; Dr. J. T. Pearman, Champaign.

On Practical Medicine—Dr. R. G. Laughlin, Bloomington ; Dr. J. D. Gardner, Mahomet ; Dr. T. K. Edmiston, Clinton.

On Obstetrics—Dr. S. H. Birney, Urbana ; Dr. T. D. Fisher, LeRoy ; Dr. J. S. Miller, Farmer City.

Committee of Arrangements—Drs. R. G. Laughlin, W. Hill, and R. D. Bradley, all of Bloomington.

Committee on Publication—Dr. W. G. Cochran, Farmer City ; Dr. S. H. Birney, Urbana ; Dr. W. Hill, Bloomington.

Dr. Laughlin offered the following resolution, which was unanimously adopted :

Resolved, That the thanks of the Central Illinois Medical Society are hereby tendered to the Good Templars for the gratuitous use of their hall, and to the profession and citizens of Farmer City for their cordial and generous hospitalities.

On motion of Dr. Hill, the Secretary was instructed to furnish copies of the proceedings for publication in the different county papers and the Chicago medical journals.

On motion, adjourned to meet in Bloomington, Illinois, on the second Tuesday in January, 1873.

W. G. COCHRAN, *Sec'y.*

Circular — Illinois Institution for the Education of Feeble-Minded Children.

This Institution, which was inaugurated in 1865 as an experimental school for the education of feeble-minded children, has been so successful in training this unfortunate class that at the last session of the General Assembly it was organized upon an independent basis, and was incorporated as one of the permanent charitable institutions of the State, thus completing the noble circle of public charities of the commonwealth of Illinois.

The design and object of the Institution is to furnish the means of education to children and youth of feeble minds, who are deprived of educational privileges elsewhere, and who are of a proper school-attending age. It is designed for those so deficient in intelligence as to be incapable of being educated at common schools, who are not epileptic, insane or deformed.

The education furnished by the Institution will include, not only the simpler elements of instruction usually taught in common schools, where that is practicable, but will embrace a course of training in the more practical matters of every-day life; the cultivation of habits of decency, propriety, self-reliance, and the development and enlargement of a capacity for useful occupation.

The combination which this Institution presents, of practical medical care and proper physical and mental training, with efficient educational resources, will supply, it is hoped, a want which has long been felt and imperatively demanded by this unfortunate class of children and youth of the State.

The improvement and progress of the pupils have been very encouraging, and parents and friends in almost every instance have expressed satisfaction with what has been accomplished in the short time since the school was organized.

The Institution is open to the inspection of the public at all reasonable hours; and all are not only cordially invited, but are earnestly requested to visit the school.

It is a State Institution, and board and tuition are free during the school year of ten months.

It is the desire of the Trustees to ascertain accurately the number of this unfortunate class of persons in the State, and persons knowing the residence of any in Illinois will confer a favor by reporting the same to the undersigned, as it is desirable that reliable statistics may be gathered in order that proper legislation may be made in their behalf.

The next school year will begin about the first of September, and those designing to apply for the admission of pupils should do so at once, as the accommodations are limited.

Applications for admission, information, etc., should be directed to

DR. C. T. WILBUR, *Superintendent,*
Jacksonville, Illinois.